Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

SHOUT
SHARE
IT

THE CULTIVATOR,

A MONTHLY PUBLICATION,

DESIGNED TO

IMPROVE THE SOIL AND THE MIND.

INDUSTRY.
ART
&
SCIENCE.
CULTIVATOR.
SCIENCE

CONDUCTED BY J. BUEL.

VOL. IV.

ALBANY:
FROM THE STEAM PRESS OF PACKARD AND VAN BENTHUYSEN.
....
1837—8.

INDEX TO VOL. IV. OF THE CULTIVATOR.

A bad practice commented on, ...Page 73
Acknowledgement of seeds, &c...... .... 13, 68
Advantage of cutting grain early, ... 30
Address of J. Buel, before the Berkshire Agricultural Society, ... 144, 159
Address to the friends of agriculture,.... 200
Advantages of working oxen on farms, ... 170
Agriculture of Md. propositions for amending, 13
  of Pennsylvania, remarks on,........ 110
  of Kentucky, rapidly improving,..... 159
  should be patronized by government, 113
  Convention, State, its proceedings,.. 22
    Ball's speech in, ... 53
    Viele's do 102
    notice of the approaching one, 157
  Society, State, proceedings of, in 1837, 25
    address of Dr. M'Naughton before, 117
  School, advantages to be derived from, J. P. Beekman, ... 33
    notices of correspondents in relation to,.................... 35
  Journals, their importance, N. Ewing, 39
    new ones noticed,.......... 82, 162
  education in France, patronized by government, ... 51
    its importance demonstrated,.. 170
  premiums in Massachusetts,...... .. 81
  surveys, their importance to husbandry,..... .... 112, 175
  report, for 1837,...... 173
  and horticultural society at Skaneateles, a summary of its proceeding—J. Canning Fuller,................ . 18
American society for the promotion of useful knowledge,..... 45
  Institute, resolutions of the,..... 90, 177
Angle-worms, inquiry how to destroy,........ 52
Artesian wells, how bored,................. 52
Apple, Siberian crap, notice of its properties,.. 63
Apples, constitute a good food for poultry,.... 144
  their utility for farm stock,....... 150, 164
  seedless, in Illinois, G. Churchill,...... 165
Anti-cattle choker, by P. Wingate, ... 67
  by J. Conant,...... 80
Arbutus, its culture recommended by Agricola, 86
An American sirocco described, J. Dille, ... 101
Army worm, its ravages, J. R. Porter, ... 116
A republican sentiment of Dr. Channing,..... 131
A synopsis of late improvements in agriculture, 171
Barley, hints on its culture, ... 45
Beans, an excellent mode of curing, S. Robinson, ... 147
Bee-moth, successful modes of escaping, 170, 185
Berkshire cattle-show noticed,......... 158
Beet sugar, Mr. Church's pamphlet on, noticed, 11
  report on, in the royal society of agriculture in France,.... ..... 18, 40, 57
Beet culture, its profits stated, ... 50
  remarks on, W. Kenrick, ... 21
Boots and shoes, directions for rendering water-proof, ... 11
Boston asylum and school farm, an excellent institution, ... 12
Brewers' grains,...... 189
Bread, economical suggestions in regard to,... 37
  various modes of making, ... 144 198
Blight in pear trees, premium of $500 for a preventive, ... 47
  opinions as to the mode of preventing, ... 159, 177
Buckwheat straw, valuable for cattle, if well saved, E. L. Dudley,............ 55
Breeding, Cooper's two rules in, ... 80
Bloody murrain in cattle, directions for curing, J. J. Deming,........... 83
Bone manure, inquiries in relation to, L. Foster, 191
  facts and experiments in relation to, 127
Butter, directions for making, J. Smealle, ... 134
Botts in horses, mode of destroying, J. Hart,.. 150
Barn and out-buildings, plan of, S. W. Jewett, 102
  G. Johnson,.. 198
Cattle, Ayreshire, described,..... 81
  Devons noticed and figured, ... 98
  improved short horns do 115
  experiments in feeding, in Scotland, ... 129
  sale of, at Powelton,..................... 139
  cure for various diseases in, P. L. Evans, 164
  food, advantages of cutting, ... 9
  relief for, when choaked or hoven,. 199
Canada thistles, how destroyed, J. Ormsby,.. 52
Cheese, mode of making, A. Petrie, ... 54
  J. Smealle,........ 85
  Prof. Low,........ 58
Canals in New-York, ... 196
Cheese-press, J. Tower's iron one commended, 132
Corn, Baden variety, how improved,......... 8
  Lake Superior, rec'd from S. Robinson,... 182
Corn, great profit of H. G. Bowers' crop, ... 15
  several varieties experimented upon, D. J. Dodge, ... 148
  crop, directions for managing, ... 29
  its prospects, 110—its products, ... 174
  great crop raised by W. Miller,.......... 165
    H. Hopkins,........ 197
  bread, directions for making, &c..... 83, 117
Cellars, how ventilated in Germany, ... 82
Chess, evidence of its originating from wheat, 133
Chillblains, remarks on,......................202
Churning, use of salæratus in the operation,.. 150
Concklin's press-harrow, figured, as improved, 176
Cultivator, its circulation in different states, 5 189
  its terms for volume V. and the reasons therefor,................. 157
  Van Bergen's described, ... 34
Cob-cracker, bark mill employed as such, .. . 9
Common school libraries,..... 190
Common schools, great legislative bounty to, misapplied, ... 10
  those of Connecticut and Massachusetts contrasted, ... 11
Cures, for the scab in sheep, R. Wheeler,.... 36
  for slabbering in horses, T. Paine,..... 36
  for the hydrophobia,................... 123
Cut-worm, destroyed by lime, A. Day,....... 47
  its habits described, ... 71
  and curculio, by J. E. Muse,........ 89
Cotton seed oil, its value to the nation, ... 51
  oil cake, its value as cattle food, J. B. J...... 69
Cotton, queries in relation to its culture, ... 163
Crops, and soils to which they are adapted,... 62
  in Suffolk county, D. F. Wells,..... ... 135
  in Seneca, J. Smith,............... 165
Churn, spring-pole and treddle, J. Low's,.... 65
Currant wine, approved mode of making, ... 83
Chicken, its mode of developement in the egg, 85
Clay farms, how managed by Greg,.. 88
  by Beatson,.. 104
Contrast between old and new husbandry, ... 93
Coal-ashes, their value as a manure, ... 93
Clover-hay, how made in Scotland,.......... 129
Clift, L. on managing calves,.... 143
Composts, how made with peat earth,....... 175
  experiments with,..................... 175
Draining, on its utility, A. O. Spoor,......... 38
  remarks on, J. B. Bowers,............... 53
  general principles of, explained, 151—bogs and meadows, 151—hills and sloping grounds, 152—soils composed of alternate beds of clay and sand ridges, 168—clay soil, ... 169
  inquiries relative to, L. Barber,.... ... 183
  tile, made by Jackson in Albany,.... . 159
Drains, various modes of constructing, ... 186
Dutton corn, notice of it, by J. W. Snyder,... 117
  its early maturity and yield, in Pennsylvania, W. P. Hunt,..... 148
  its estimate in Ohio, M. Mondenhall, 165
Devon cow, winter products of one,.......... 62
Deeds and mortgages, required to be recorded, 68
Diseases of cattle, J. Smealle, ... 68
Digest of the principles of agriculture proposed, W. Johnson, ... 69
Dogs, how cured of sheep-killing, G. D. Avery, 81
De Labigaire, P. on mulberry hedges, with directions for their management, 82—directions for sowing mulberry seed, 96—experiments with lucern,.................... 82
De Witt, Simeon, extracts from his address in 1799, ... 194
Effects of cropping,....... 94
Experiments in manuring corn,............... 97
  with gypsum,.... 97
  in harvesting corn, ... 142
  of D. Bradley, with seeds, ... 162
Economy of feeding,........................ 166
Extent and effect of agricultural improvement in Scotland, ... 175
Education in Austria, ... 196
Facts in agricultural science,.... 10
Farm accounts, their importance, and mode of keping pointed out,....... 37
Farmers' clubs, ... 194
Farm implements, for sale by W. Thorburn,.. 33
  exhibited before the committee of the State Ag. Society,.... 99
Facts worthy of consideration,.............. 50
  worth remembering,...... 123
Farming, in the valley of the Wabash, E. Ellsworth, ... 134
Farming capital necessary,.................. 125
Fat mutton, from T. Dunn's farm,............ 37
Fat animals and large crops, result alike from abundance of proper food,................ 78
Fallowing, comments upon, ... 73
Fence posts, how preserved, ... 200
Flax crop, its products, T. S. Knapp, ... 86
Floral exhibition at Ghent,..... 68
Fresh air, indispensable to health, ... 65
Fruit blossoms, mode of preventing abortion of, 51
Frontier farming, a Jefferson farmer, ... 40
Force of prejudice,... 37
Flavor and color, in fruits, depend on the action of light, ... 10
Garden, scientific principles of transplanting, 6; of striking; of grafting; transporting trees, 6; pruning, 7; binding of the graft, 7; rules and directions for managing, ... 30
Grain, hints on the growth of 12; chemical composition of, 12; remarks on seed, time and depth of sowing, quantity of seed, &c. 13; product in flour, of different kinds,......... 13
Grape vines, mode of training, E. Tomlinson, 18
  N. Darling,... 183
  how successfully pruned,..... 131
  produce of, in Ohio,..... 177
Glossary of chemical terms, ... 26
Gypsum, inquiries relative to, C. L. Dudley, 54
  benefits experienced from its use, A.... 200
Grasses, kinds adapted to the south-west, W. A. Stone, ... 116
  artificial, the basis of good husbandry,.. 73
General habits of insects,................... 89
Grain-worm, its extension west and south,. 97 139
  queries in relation to, ... 109
  communication relative to, A. Carter, 162
    A. Cowley, 162
Good farming in Virginia, J. H. Cocke, ... 136
Great corn crop, by Mess. Stephens & Ludlow, 143
Geology for schools, Prof. Mather's noticed, .. 177
Grubs, mode of destroying, J. Field, ... 183
Hay, more profitably fed than sold, ... 69
  on the best time for cutting,............... 130
  press, its advantages stated, A. Van Bergen, 12
    Lampman's described,............... 33
  making, improved mode of, T. S. Knapp, 13
    hints upon, ... 98
Heat, average temperature in the earth below frost,................................. 10
  radiation of, explained, ... 10
Harrowing grain, in spring, recommended,.... 51
Harrows, their utility in husbandry, ... 59
Harrow, E. Wilbur's described, ... 133
How to improve a poor farm, R. A. Leonard,. 36
Hop culture, S. Cheever, ... 38
Hoven in cattle, cure for, J. Daniels, 52; G. W. Forman, 132; W. Keese,............... 52
Horn ail, how cured, J. Grant, ... 52
Horse-power, Gleason's described, ... 52
Hints on diet, A. Wood, jr...... 84
  and domestic economy, ... 178
  for the piggery,....................... 194
  in regard to sheep, ... 190
Hollow-horn, mode of curing, J. W. Gray, ... 100
Havens, J. on the white thorn hedge,........ 112
Horses, cholic in, how cured,................ 132
  directions for curing sundry diseases in, S. Robinson, ... 132
  scraches in, how cured,........ 200
Hominy, claimed as a yankee contrivance, C. Butler, ... 134
Hedging, whole process described, J. H. Chiswell, ... 181
Italian rye grass, withstood the winter, ... 34
Illinois, some account of, W. Gould, ... 36
Improvement of the soil,................. 59, 71
Industry, the best resort in misfortune, ... 97
Indolence the parent of vice, ... 131
Influence of education upon agricultural improvement, ... 175
Incombustible wash and whitewash, ... 179
Kent, Chancellor, notice of his address, in 1796, 112
Kyanizing wood, preserves it from decay, ... 131
  process described, ... 176
Kentucky farming, F. E. Becton,.... 150
Live fences, the materials to be employed for, 126
  mode of procuring plants, ... 176
  preparation of the ground and planting, 192
  managment of the hedge, ... 192

INDEX TO VOL. IV. OF THE CULTIVATOR.

Live fences, sweet brier recommended as suitable for, R. F. Gourlay, ... 148
  observations upon, J. Dille, ... 165
  directions for growing, J. H. Chiswell, 181
Long manure, why adapted for hoed autumnal crops, ... 9
  its advantages to the corn crop, N. Chittenden, ... 16
  estimate of its value to the corn crop, ... 32
Lime, caustic, in what cases to be applied,... 10
  its effects on wheat, J. Shields,.. 70
  rules for applying,............... 194
Livingston, R. L. experiments with gypsum, 46; extracts from his address in 1793, 63; letter to A. Young, 96; on the effects of shade trees on crops, 96; on the excretory duct of the feet of sheep,................. 194
L'Hommedieu, Ezra, on augmenting manures, 49; on sea-weed as a manure, and on the destruction of hedges, 82; on raising clover seed, 47; on improving land by clover, on raising calves, and on freeing seed grain from oats, 82; on various manures, 130; on the fattening of hogs, ... 131
Leached ashes, their utility as a manure, ... 93
Manure, how much should a farm produce ?.. 48
  estimates of Dr. Coventry and others,.. 48
  should be covered in fields with earth,.. 9
Mulberry, the Brussa recommended, A. Spencer, 14
  should not be defoliated too often,. ... 9
Massachusetts encourages agricultural societies, 37
Memoirs of the board of agriculture favorably noticed, ... 51
Mowing machine, Ambler's, its properties described, ... 51
  Wilson's, its performance,.. 115
Mohawk valley, its agriculture improving,.... 80
Monies purloined from the mail, ... 80
Mullein, said to drive mice from granaries and barns,.......... 82
Meadow and pasture grasses, J. Finch,. 51
Mildew on gooseberry, how prevented,... 95, 159
Millet, its culture, product and use,.... 114
Mile, its length in yards, in different countries, 115
Mixed husbandry, its advantages,.... 129
Mitchell, S. L. notice of his address before the Agricultural Society, ... 143
Miller's machine for unloading hay,.... 182
Mistaken notions of agricultural employment,· 190
Miscellaneous notices, ... 164
Nature and uses of the products of vegetation, 120
New-York legislature, remarks upon their proceedings, ... 62
Nutritive principle of animal food in grain and roots,................. 78
New substitute for the mulberry, J. Hathaway, 86
Nutmeg potatoes received from S. Robinson,.. 101
Notice of the farm of J. F. Edmunds,........ 120
New-year remarks, ... 173
Notices to correspondents—in regard to lime; to white turkeys and Westphalian geese; to Williams' ploughing machine, and to White's root slicer, ... 000
Oats, heavy varieties noticed, ... 32
  hints on their culture, ... 46
Outline of the first principles of horticulture—general nature of plants, 74; the root, the stem, 75, 90; leaf-buds, leaves, 91; flowers, 105; sexes and fruit, 106; seed, 121; sap, air and light, 122; perspiration, cuttings, scions, 138; transplanting,... 139
On feeding milch cows with ruta baga, C. N. Bement, ... 199
On the decay of the apple tree, by W. Denning, 112
Our condition, ... 97
Over-trading, a national fault,.............. 128
Of nutritive manures, from Chaptal, ... 136, 152
On the means of improving our agriculture,... 174
Opinions of wise men,...................... 178
On promoting the collection and diffusion of useful knowledge,......................... 200
Peat earth and peat ashes, as manures, 157, 174, 190
Periodicals, their influence,.... 200
Premiums offered by the conductor,.......... 5
  to whom awarded, ... 189
  by W. Garbutt,............ 48
Power-looms greatly abridge labor, ... 21
Potatoes, mode of growing in Virginia,....... 36
  Rohan, and other varieties noticed, 142, 177
Potato-dropper, by a Montgomery subscriber, 22
Planting, inquiries relative to, L. Kelsey, jr.. 52
Philosophy of crosses, W. Gaylord,......... 50
Peripneumony in cattle, how cured,.......... 79
Planting and hedging commenced in Missouri,. 95
Pigs fattened upon apples, C. Butler, ... 134
Profits of old and new husbandry contrasted,.. 141
Proposed improvement of the Cultivator,..... 157
Products of a Tennessee farm, ... 162
Profits of farming, E. Cornell,........... 180
Pudney's revolving horse-rake,............... 184
Poultry, remarks on raising,. 192
Rural Library, a cheap and valuable publication, 13
Ruta baga, directions for raising, J. W. Lawton, 17
  remarks on their culture, C. N. Bement, 179
  E. Tilden's crop, ... 84
  W. Taylor's crop,.... 165
  J. J. Bullock's crop, ... 197
  W. Cotton's crop, ... 197
Rollers, hollow wooden ones, how easily constructed,. 34
  recommended by Chaptal, ... 59
Rules for ploughmen, ... 66, 196
Rye, directions for its culture,......... 97
Rotation of crops, its advantages, ... 73
Root culture, extending among us,. 78
  its success with R. Harrison, jr..... 174
  success of, ... 201
Relative value of grasses, by Rev. Dr. Muhlenburgh,................................ 96
Rules for selecting sheep and beasts,......... 166
Salt, its effects on wheat, J. Shields, ... 70
Salting meats, directions for, ... 178
Saw-set, Stillman's, recommended,..... 98
Science of agriculture,........ 189
Seed-corn, objections to steeping, M........ 56
  remarks on steeping, D. L. Dodge,... 83
Seeds received from S. Robinson,............ 182
Seed grain, mode of steeping, R. Johnson,.... 66
Silk-spinner, Brook's, its advantages stated, 26, 31
  culture, its prospects, W. Kenrick,...... 21
  worms, mode of managing in Turkey, Agricola, ... 87
Sheep, Lincolnshire, recommended, L. D. Clift, 22
  classed as short, long and middle wolled,. 48
  Lincolnshire and Bakewell compared, as to fleece, L. D. C....... 146
  Bakewell, weight of fleece in T. Dunn's flock, W. H. Sotham, ... 181
  husbandry, soundness of wool, ... 27
  barn, E. Tilden's,...... 84
School libraries in Massachusetts,........... 50
Smut in grain, may be prevented by salt and lime,...................................... 110
Smut in wheat, how prevented, ... 167
Starch and sugar, similar in their elementary matters, ... 12
Starch and sugar, quantity found in different vegetables, ... 12
Stall-feeding, its advantages over yarding,.... 36
Stump-extractor, inquiries for,............... 80
  answers to, J. H. Drake, 100
  E. Cornell,...... 114
  Whitney's noticed,.......... 146
Steam apparatus, recommended by A. Loomis, 116
  improvements proposed, S. Hamilton, 149
  suggested improvements in, R. L. Allen, ... 180
Sugar and gluten, constituents & food of plants, 10
St. Johnswort, how destroyed, T. Paine, ... 36
Spring wheat, recommended to be sown late, R. Wheeler, ... 36
Summer soiling, its advantages and disadvantages, ... 67
Swine, their good points described, ... 63
Soiling, its advantages, by Von Thaer,....... 80
Spelt wheat, its properties and habits, F. C. Speyerer, ... 116
Soils, argillaceous, how improved, ... 60, 71
  alluvial, how preserved and enriched,.... 72
  silicious, how improved,................ 72
  their absorbent properties connected with fertility, ... 97
  paring and burning, when beneficial and when hurtful,........................ 80
Spot in spring wheat, J. Dudley, ... 149
Tall meadow oat grass commended,.......... 96
Thermometers, scale of graduation, ... 33
Tooth-ache, how cured,..................... 32
Turnip drill, Bement's, described, ... 42
  hoe, J. Collins', noted, ... 64
Turnips, directions for their culture, ... 64
Theory of agriculture, ... 43
The harvest prospects,..... .... 45, 79
Thirty years ago,......................... 50
Topping corn, occasions a loss of grain,.. 50, 142
The times, remarks upon,.................... 61
Tomatoes, their medicinal properties, ... 62
Timothy sown with buckwheat,....... 112
The test of good farming, ... 162
Tide mills, inquiries relative to,.... 179
Usury laws prejudicial to agriculture, ... 21
Venice turpentine, used to destroy the worm in the head of sheep, N. Chittenden,.......... 16
Vegetable matters, should ferment in the soil, . 32
Vitality of seeds, prof. Henshaw's experiments, 51
Water, its offices in vegetation, ... 73
  how applied in irrigation, ... 73
Wooden rollers, cheap mode of constructing,.. 34
Weeds, mode of destroying, ... 37
Weddle's stock recommended, W. Garbut,.... 55
What is a useful education ?................ 77
White grub, mode of destroying, C. P. Kimball, 83
Worms, how destroyed, N. Blackly, ... 85
  destroyed by fall ploughing, S. W. Jewett, 133
Wheat, the Italian and Siberian varieties distinct, ... 31
  compared, T. Goodsell, 163
  J. Hathway, 183
  remarks on its culture,................ 34
  winter, sown in Tennessee in spring,... 64
  the spring varieties described, ... 110
  winter varieties may be sown in spring,. 194
  early May, sent by Gen. Cocke to the Conductor, ... 147
  crop injured by blight, ... 109, 130
Wheat and wheat bread,..................... 199
Wool, microscopic appearance of, ... 44
  its fertilizing properties in the soil,..... 128
  market, its prospects, by Otsego, ... 85
Wintergreen, its medicinal properties......... 67
Webster, N. on managing the potato crop, ... 143
Yellows in cattle, how cured and symptoms,.. 79

YOUNG MEN'S DEPARTMENT.

Advantages and pleasures of rural life,... 188
Conditions required for efficient respiration,... 75
Healthful recreation for young ladies, ... 48
Hints to young farmers, No. 5, culture of the mind, ... 27
  No. 6, political duties, 92
Hints on diet,.............................. 28
Hints to mothers,...... 108
  to parents and schoolmasters, ... 123, 139
Important requisites in a wife, ... 48
Influence of science and literature upon individuals, and communities, by Miss L. S. Smith, 106
Intemperance in dress,...... 48
Miseries of indolence,. 172
Natural philosophy, mechanics, 171; hydrostatics, pneumatics, 172; acoustics, optics, ... 203
Rise and fall of families,. 172
The husbandman, hints to the young of both sexes, ... 156
Winter evenings,...................... 204

REFERENCE TO CUTS.

1—2 Potato dropper, ...Page 22
3 Silk spinner,........... 26
4 Graduated thermometers, ... 32
5 Van Bergen's cultivator, ... 34
6 Lampman's hay press, ... 38
7 Bement's improved turnip drill,...... .. 42
8-19 Microscopic appearance of wool,. 49
20 Gleason's horse power,..... 52
21-25 Turnip culture, ... 65
26 Treddle churn,..... 65
27-28 Plough nozzles, ... 67
29 Draft of plough, ... 68
30 Ayrshire cow,....................... .. 81
31 do. bull, ... 81
32 Sheep barn,........... 84
33 Saw-set,............................ 98
34 Devon bull,....... 98
35 do. cow,................... 98
36 Plan of barn, &c...................... 102
37 Short horn bull,...................... 115
38 do. cow,..................... 115
39 Steaming apparatus, ... 116
40 Wilbur's harrow,...................... 133
41-42 Illustrative of draining,................ 152
43-44 do. do. 167
45 do. do. 168
46 Conklin's press harrow,............... 177
47 Pudney's horse rake, ... 184
50-51 Poultry houses, ... 193
49 Bill or hedge hook,................... 192
48 Breast plough, ... 191
52-53 Syphon,. 203

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

Vol. IV. ALBANY, MARCH, 1837.—(67 State-street.) No. 1.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor.*

TERMS.—Fifty Cents per annum, to be paid in advance.

Special Agents.—Judah Dobson, Philadelphia—Messrs. Hovey, Boston—George C. Thorburn, New-York. Alexander Walsh, Lansingburgh, gratuitous agent. Any gentlemen who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

☞ The first volume of the Cultivator will be reprinted in all the current month, and immediately forwarded to order. The three first volumes will then be for sale, stitched, at 50 cents each, or the three bound in one, at two dollars.

☞ To give, in detail, the proceedings of the State Agricultural Convention and of the State Agricultural Society, we have added eight extra pages to our present number, at an expense of nearly $200.

NEW-YORK STATE AGRICULTURAL SCHOOL.

The election for thirty trustees of this institution is postponed to the 26th of April next, then to be held at the Mansion House, in Albany, at 4 o'clock P. M.

Feb. 15, 1837.
J. BUEL, } *Commis-*
J. P. BEEKMAN, } *sioners.*

OUR FOURTH VOLUME

Commences with the present number. We make our grateful acknowledgments to the gentlemen who have interested themselves in extending the circulation of the Cultivator, and respectfully invite a renewal of their kind offices. Putting out of question the contributions of the conductor, of the merits of which it does not become us to speak, we venture to say, there is no periodical of its size which contains more useful matter directly calculated to improve our agriculture, than is to be found in our columns; and there is no periodical which gives so much matter at so small a price—the contents of a volume of the Cultivator being equivalent, by printers' computation, to five ordinary duodecimos, which sell at 75 to 125 cents each. If, then, as we believe, the paper is cheap, and useful, its benefits to the public will be in proportion to the extent of its circulation; and every gentleman may benefit his neighborhood by a moderate effort to enlarge our subscription list, which we are unavoidably obliged to renew annually. We do not desire to press our sheet upon any, to the exclusion of other agricultural journals; but there is a vast space yet unoccupied; and fifty cents a year is a trivial consideration, compared to the advantages which the farmer may derive from the information contained in an agricultural journal. We hope, with the assistance of our able correspondents, to make each number worth half a dollar to the farmer, and we shall do it if he will but resolve to better his condition. We plead not for ourselves, but for the great interest which it is our pride and pleasure to serve. As it has been proposed to make it a penal offence to *receive* bills under $5, we hope it will be found convenient to remit those of a *legal* denomination.

As the Cultivator circulates in all the states of the Union, which embrace a variety of climate and culture, it is our object to render it serviceable to all, rather than to a particular state or district—to treat more of the general principles of agriculture, adapted to all, than of local practices, serviceable only to a few. This must serve as our apology for omiting to publish communications which might be interesting in a local point of view, but could not be interesting to the generality of our readers. The justness of this conclusion will be apparent, from an examination of the following schedule, which shows the extent of the circulation of the Cultivator in the several states:—

New-York,	6950	Delaware,	177
Virginia,	964	New-Hampshire,	140
Connecticut,	835	Kentucky,	165
Pennsylvania,	680	Tennessee,	149
Massachusetts,	656	North-Carolina,	173
Maryland,	617	South-Carolina,	61
Ohio,	544	Georgia,	57
Indiana,	520	Alabama,	41
Vermont,	435	Mississippi,	54
New-Jersey,	460	The Canadas,	166
Illinois,	309	District of Columbia,	42
Michigan,	296	Missouri,	55
Maine,	37	Rhode-Island,	37
Louisiana,	36	Wisconsin,	21
Florida,	4	Scotland,	4

CULTIVATOR PREMIUMS.

To encourage useful competition, and to render the columns of the Cultivator more interesting to its numerous readers, by the publication of the facts which we hope to elicit, we offer the following premiums upon the undermentioned subjects. The essays and statements may be forwarded to us any time during the current year, (post paid) and the premiums will be awarded and delivered at the next anniversary of the State Agricultural Society, on the first Thursday in February next.

1.	To the cultivator of the most profitable acre of Indian Corn	$10 00
2.	To do second do	5 00
3.	To the cultivator of the most profitable acre of Ruta Baga,	10 00
4.	To do of the second do	5 00
5.	To the like of the best acre of Mangold Wurtzel,	10 00
6.	To do of the second do	5 00
7.	For the best directions for making cheese, founded on the competitor's own practice,	10 00
8.	For the second best do do	5 00
9.	For the best directions for making and preserving butter, founded as above,	10 00
10.	For the second best do do	5 00
11.	For the most satisfactory experiments in harvesting Indian Corn, with a view of determining the loss or gain, by topping, cutting at the ground, or ripening the grain upon the entire stock,	10 00
12.	For the most satisfactory experiments in determining the value of apples, as food for farm stock,	5 00
13.	For the best plan of a barn and cattle sheds, adapted to common farmers,	5 00
14.	For the best essay on saving and applying the manures of a farm,	5 00
		$100 00

The ten dollar premiums will be paid in plate, with suitable inscriptions—the five dollar subscriptions will consist of the four published volumes of the Cultivator bound, and one volume of the monthly Genesee Farmer, also bound. The competition open to citizens of the United States.

Our object in offering these premiums is to obtain and diffuse useful information; hence we shall require, in regard to the crops, a detailed statement of all the expenses, including manure, labor, &c. and of the products, similar to the statement we to-day publish of Mr. Bower's corn crop.

In the dairy business we wish the processes so fully detailed as will enable others to understand and to adopt them—and we should like, unless very inconvenient, to see, and taste, specimens of the products, before we should feel competent to judge of their relative merits—though this is not insisted on.

We also desire, that the number of cows constituting the dairy may be stated, their average product, in butter and cheese, and the extra feed, if any, which they receive. And we desire that where they are fed for a time with any kind of roots, or apple pomace, the effect which these have upon the quantity of milk be also noted.

The 11th and 12th premiums embrace objects of much interest to our agriculture, and the experiments will require some degree of care and accuracy. The experiments with the corn should embrace half an acre at least—one third of which, taking alternate rows, may be topped, and one third cut up, at the same time, and as soon as the grain has become glazed. The product under the three processes should be measured and weighed separately, both in the ear and after it is shelled—and the value of the forage under each process, and of the labor in performing it, estimated.

The 13th subject will require a drawing and description, and may be made to embrace a wagon house, tool house, and other useful offices.

In reference to the 14th premium, the extraneous means employed to increase manure should be noticed—the mode of protecting it, if any is adopted, from the wasting influence of the weather—the average product from each animal kept in the yard or stable,—and some comparison in the economy of applying it, in a fermented and unfermented state, to corn, potatoes and other hoed crops.

We shall ask for the certificate of a magistrate, where the competitor is unknown to us, that the applicant for a premium is a person of veracity, and that the truth of his or her statement may be depended on.

THE GARDEN.

We consider a good garden not only as contributing largely to the health and sustenance of the family, but as a pretty good indication of the taste and comfort of its inmates. We are desirous, therefore, of contributing all in our power to the multiplication and improvement of these sources of rural enjoyment. Of their various productions, fruits deservedly hold a high rank. The varieties of the pear now in culture, furnish a succession for the table through the whole circle of the year, and always command a liberal price at market. The Vergaleu is usually sold at two to three dollars the bushel, and we have seen it sold at 15 to $17 the barrel; and other varieties, equally luscious, need but be better known to command an equal price. The plum and the peach, where the latter can be grown, are equally desirable for family use, and profitable for the market. The same remark holds good as to grapes, with the further advantage, that they, as well as the plum, may be preserved fresh and fine for winter use, by alternating them, in stone jars, *as stated in our last volume*, with cotton batting or dry cork dust. The smaller fruits, as the strawberry, raspberry, current and gooseberry, are all easily multiplied, form a succession of delicacies for the table for two or three months, and are more or less promotive of health. All these fruits may be enjoyed by the farmer, in superior excellence, without seriously abstracting from the labors of the farm. They may be most of them kept in a dried state, for family use or for market, during the year; and when beet sugar becomes as abundant here as it is now in France, an event which we expect ere long to see realized, preserved fruits may become as common with our farmers, and be made to contribute as largely in our bills of fare, as they now do in some parts of the eastern continent.

The season for transplanting, and for propagating by grafting, layering and by cuttings, being at hand, some remarks upon these processes will not be considered impertinent, and we trust not unprofitable.

The first step is, where scions are to be employed, either as grafts or cuttings, to secure the desired varieties without delay. They should be separated from the parent stock before the buds begin to swell. They may be transported to any reasonable distance, and kept till wanted for use in a cellar, or with their butt ends well plunged in earth. The larger fruits my be propagated by grafting or layering; the grape, current, quince, and gooseberry, by cuttings.

As we have, in our second volume, given partial directions for grafting and layering, with cuts illustrative of these processes, we shall avail ourselves of the labors of Prof. Rennie, in explaining more fully the scientific principles upon which they depend for success.

"SCIENTIFIC PRINCIPLES OF TRANSPLANTING.

"The removing of growing plants from one part of the garden to another is done for various reasons, and the science of transplanting will consequently depend on the intention of the gardener in the operation. The principle facts to be recollected are, that every plant takes its food by the tips of the root fibres, and that the sap thence carried up into the leaves has much of its water and oxygen carried off by exposure to light, particularly to sunshine. It follows that if part or all of the tips of the root fibres be broken off or bruised, the plant will be kept hungry or starved, just as an animal would be, with its mouth much injured or blocked up; while if a plant in such a state is placed in the sunshine, the water and oxygen carried off thereby will very soon cause it to flag, wither and die.

"TRANSPORTING.

"If the gardener's object then be simply to move plants from one place to another, without affecting their growth in any way, it will be important to preserve every root fibre entire; and even, where this can be done, to take it up with part of the soil in which it has been growing, or with a large ball of earth, as it is termed. Where this cannot be done, the root fibres ought to be placed in their new station as nearly as possible in the manner they were at first, and hence dibbling, where the soil is at all stiff, will be bad practice, from its being certain to confine and crush the root fibres within the walls of the dibbled hole.

"If it be found impossible to preserve the root fibres from injury, or to replant them exactly as they were, then, in order to diminish the loss of water and oxygen, the plants ought to be shaded from the light, or, if that cannot be done, they ought to have a suitable proportion of their leaves [applied to annuals] or branches cut off. De Candolle says this practice was wont to be so universal upon the continent, that the gardener's maxim was, 'if you plant your own father you must cut off his head.' Sir Henry Stewart has proved the bad science of such universal barbarity."

"It is important not to plant the roots too deep, so as to be out of the reach of air, or too shallow to expose them to drought." If the holes are made sufficiently large and deep, so as to have the roots surrounded, when the plant is in its place, by well pulverized surface mould, a tree should not be planted more than an inch deeper than it stood in the nursery. The object in transplanting cabbage, broccoli, &c. is, by checking their growth, to throw them earlier into flower or head. Trees are frequently transplanted, in their young state, by nurserymen, purposely to abridge their long roots, and to increase their root fibres. They are therefore in the best condition for final planting, after they have been one year transplanted, and done well in the nursery. They are then removed with nearly their entire roots.

"SCIENTIFIC PRINCIPLES OF STRIKING.

"By certain experiments, not by any means praiseworthy, yet, beyond all question, correct, it has been proved that, if the head of a snail, or earth-worm, be cut off, the body will not only live for a considerable time, but a new head will be reproduced, with a mouth capable of taking food. By similar experiments it has been found that the legs of spiders, and the feet of frogs, when cut off, are reproduced.

"Upon a similar principle, when the roots of certain plants, which are to them what the head is to animals, are cut off, new roots may, under peculiar circumstances, be reproduced. The chief condition required for the reproduction of such roots, is the preservation of their life till the roots have time to form, and various expedients are resorted to with this view, as well as for the quick production of the roots."

STRIKING BY LAYERS.

The common mode of striking by layers, is to select a branch, to slit, tongue, or cut it half through in a direction sloping upwards, or to take off a ring of bark, or pierce it in several directions by a brad awl, or twist a wire round it,—to bury the part operated upon in the earth, leaving the point above ground and to fix it in its place by a crotched stick. The descending pulp, otherwise called elaborated sap or cambium, is stopped short by the cut, in its passage towards the root, root buds are formed by it, which soon send out roots into the moist earth, and when these are deemed strong enough to feed the plant, the branch is cut off a little below, and the tree in miniature is ready for planting out. The soil should not be too damp, lest the cut part cankers. [See directions and cut at page 29, vol. iii.]

"SCIENTIFIC PRINCIPLES OF GRAFTING.

"When the finger is cut with a knife, the blood vessels soon after contract their cut extremities into an opening so narrow, that the thicker and red part of the blood cannot pass, and the bleeding therefore ceases. But even then there oozes out the thin watery part of the blood, consisting chiefly of matter the same or similar to the white of an egg, which being thus separated from the rest of the blood, thickens by the heat of the body, as the white of the egg does by boiling. If the lips of the finger-cut accordingly be kept close together by sticking plaster, they will become united by means of this natural glue, or serum, in little more than a day. Upon the same principle, I once succeeded, as others have done, in managing to unite the whole up-joint of a finger which a boy had chopped off by machinery; and experiments have been successful in causing the spur of a cock to unite and grow upon his comb.

"It is upon similar principles that the science of grafting is founded; for if a young branch, like the boy's finger, be taken off by a clean cut, and the cut extremities immedidately joined, the descending pulp will thicken like the watery part of blood, and while it remains soft, the sap from the cut end of the sap vessels will force its way through to their continuation above in the cut slip, which, if the process be successfully managed, will grow as well, or nearly, as if it never had been cut.

"If again, instead of applying the same cut scion to the part it was cut from, a scion from another tree be applied, as if I had applied to the boy's finger the tip of another boy's finger, chopped off by the same accident, there seems no good reason to doubt that a similar healthy joining might, by care, be effected. In the case of animals, indeed, such joinings are rare, because rarely tried; but in garden plants they are exceedingly common, for the purpose of continuing esteemed varieties of esteemed fruits and flowers accidentally produced by cultivation, as well as for forwarding the fruiting of young trees—since seedlings require years to arrive at a bearing state.

"On examining the joining of a graft about a fortnight after it has been made, I have found, as in a healing finger-cut, a number of small roundish grains, in form of a thin layer, produced from the thickening of the pulp, and destined to form the hard substance termed the callus, which in general projects a little externally, and the scar differs in appearance from the other parts of the bark. It is, however, only in the space between the pulp-wood and the bark that the uniting substance is formed, and therefore it is evident that the slip to be grafted must have this part applied to the same part of the stock, and, if these differ in thickness, at least to one side."

"One of the most obvious principles of this process is, that the scions to be grafted should be alike, or nearly alike, because, in that case, the arrangement of the sap and pulp vessels being similar, their cut ends will more readily apply mouth to mouth, and less obstruction, or interruption of the circulating juices will take place.

"To this principle there is an exception, arising from the peculiar design which the graft is intended to fulfil. When the design is to increase fruit bearing, the stock may be of finer texture than the cutting, as when a peach cutting is grafted on a plum stock, which having narrow vessels, a part of the descending pulp is stopped short, and seems to strengthen the branch. If it be intended to increase the branches and leaves on the other hand, a plum cutting grafted on a peach stock might probably do so, by allowing the ascent of more sap.

"BINDING OF THE GRAFT.

"When the joining has been made by cutting and properly fitting the bark of the slip to the bark of the stock, at least on one side thereof, it must be bound so as to prevent this junction being deranged. This is usually done with a ball of three parts of clay, well worked with one part of fresh horse droppings, and a little finely chopped straw, the whole about an inch thick, and two inches or more in length, being tied with a ribbon of bass."

"The principle upon which this is done, is to prevent the oxygen of the atmosphere from getting to the fluid pulp at the joining, where it would unite with the carbon, and form carbonic acid gas, and thereby rob the pulp of its solidity. The exclusion of light is necessary on the same account, for, as in the case of a finger cut, the oxygen would unite with the carbon, and prevent the thickening of the matter from the blood. On the same account, moisture, by supplying oxygen, would be injurious; and dryness might act both by exhausting the pulp, and by causing the edges of the bark to shrivel and gape, which would facilitate the entrance of the air and its oxygen." [For the particular modes and process of grafting see p. 18, vol. ii. of Cultivator.]

PRUNING.

We have been the constant advocate for summer, instead of winter pruning—of pruning after the leaves have expanded, and the limbs have nearly or quite completed their vernal growth, in preference to pruning when trees are leafless, and the growth dormant. We have done so because we considered it most rational in theory, and have found it more beneficial in practice. As it is the general practice to to prune fruit trees at this season, we will recapitulate the reasons which have influenced our practice.

1. Winter pruning causes an increase of spray, or weak limbs, which it is the object of the cultivator to lessen, in order to admit the light, heat and air into the head of the tree, to perfect and mature the fruit. On this point we quote Prof. Rennie.

"The head or branches," he observes, "will always be in proportion to the roots, and the food with which they are furnished. It will therefore be obviously preposterous to dream of checking the luxuriance of a tree, by cutting out its branches in autumn or winter; for no sooner does the sap begin to flow in spring, than fresh branches will arise from the strongest branch buds below where the pruning was made, and the same quantity of sap being furnished, the tree will very soon be as luxuriant as before the operation. Frequently it will be more so, for the pulp laid up in the roots the preceding autumn will be more apt to cause new root fibres than in an unpruned tree. So true is this, that weak old trees are often headed down to render them luxuriant; though the same gentlemen will also extensively top luxuriant trees in winter, with the hope (certain to be frustrated) of checking their growth. Summer pruning, however, has a different effect; and when young shoots and suckers are thinned off in summer, they prevent a tree from exhausting itself." —*Alphabet of Sci. Gardening.*

2. Winter pruning leaves to the sun and winds, at the worst season of the year, and for a long time before the healing process can commence, the wounds of the amputated branches. The cut part either dries and checks, making a lodgement for rains, and causes disease and death, or the sap exudes from the wound, producing canker and corroding the bark.

3. Both of these evils are averted by summer pruning. New sprouts are seldom thrown out, and the diminished flow of pulp, or elaborated sap, is expended in healing the wounds, by covering them entirely, or the edges, with new wood, and in the formation of buds.

It should be borne in mind, that light, heat and air, are all necessary to develope the excellence of fruit. Without their co-operation fruit neither attains its natural colour, consistence nor flavor. Light is necessary to give substance, hardiness and colour. Heat is indispensible to the active circulation of the sap and the formation of sugar, or the principle of flavor. And air is necessary in modifying the sap while undergoing the elaborating process. Hence the utility of exposing fruit to the influence of these agents, by thinning the wood upon fruit trees. In the apple, especially, it is advisable to train its top in the form of an inverted funnel, by cutting out the leading upright shoot, as soon as three or four arms or branches, at a proper height, are sufficiently advanced to receive and elaborate the sap coming from the roots. Upright wood does not produce fruit like that which inclines, or grows nearly horizontal. So that taking out the leading stem not only produces more, but better fruit. As leaves are as necessary to the formation of roots, as roots are to the formation of leaves, in pruning, one-third of the stem should at least be left untouched by the pruning knife.

FACTS IN AGRICULTURAL SCIENCE.

ANALOGY BETWEEN ANIMAL AND VEGETABLE NUTRITION.

Animal and vegetable matters constitute the food of animals and vegetables; yet these matters nourish neither the animal nor the vegetable, until they have undergone certain preparatory processes, and are reduced to a fluid state. Solid substances, so long as they remain solid, can benefit neither.

The soil is to plants what the stomach is to animals—the recipient of food—where it undergoes its first process of preparation, is broken down and blended with a solvent liquid.

The spongeoles, or small roots of the plants, like the lacteals in the animal, take up the digested food, and send it to the leaves, as the lacteals do to the lungs, for its perfect preparation as food.

Leaves are to plants what lungs are to animals—the organs of respiration. The lungs retain oxygen and give off carbon. The leaves part with oxygen and inhale carbon, when the sun shines upon them, and imbibe oxygen when it does not. Leaves are, in summer, as necessary to the health and growth of the vegetable, as lungs are to the health and growth of the animal.

Heat, air and water are essential in all the processes of nutrition, vegetable as well as animal.

The ordinary temperature of the animal stomach is 98°—hence animal digestion does not abate for want of heat. The decomposition of vegetable food, in the soil, ceases when the thermometer sinks below 40°, and is most active at the temperature of 80°.

Neither lungs nor leaves can perform their office healthfully, without access to fresh air; nor can decomposition take place without air.

Water is a necessary solvent in the preparation of vegetable and animal food for the delicate mouths of the lacteals and spongeoles, and is no less indispensable as a medium of transmitting the food to the lungs and the leaves, and from thence through the animal and vegetable structures.

After the blood of the animal has been perfected in the lungs, it is conducted, by minute arteries, to every part of the body, and is transmuted into flesh, &c. After the sap has been elaborated in the leaves, it is conveyed, in like manner, to every part of the plant, and is then converted into wood, fruit, &c.

Vegetables, like animals, may be injured by an excess of food; and when food is too concentrated, or too rich, the lacteals and the spongeoles become clogged, and unfitted to transmit aliment to the lungs or the leaves.

A seed may be compared to an egg. One contains the germ of a chick, the other the germ of a plant. Nature has provided in their envelopes the food proper for both, in infancy, and until they can provide for themselves. Through the agency of heat and air, the chick becomes animated, grows, and bursts its shell; and the seed germinates, grows, and bursts the earth. Both seem to require the exclusion of light.

The elementary matters found in animals and vegetables are nearly the same—the animal contains the most nitrogen, the vegetable the most carbon. Lime and iron are found in both.

And in both, the power and the habit exist, of throwing off, through their excretory organs, matters, blended with their food, not fitted to their wants, or not assimilating with the elements of their structure. Plants often exhale, or give off, like some animals, a strong odor.

As weeds are more commonly natural to the soil than cultivated crops, they are grosser feeders, and consume more food than the latter. Hence they should not be permitted to rob the crops.

MANURE.

HOW MUCH SHOULD A FARM PRODUCE?

In estimating the value of crops, and of stock, to the farm, the European farmer asks, "What manure will they give?" as among the prominent matters of consideration; for manure there, as it is every where, is the prime source of a farmer's profit. To induce our readers to think on this matter, for then they will act, we submit some estimates of the quantity of manure which animals and crops are respectively made to produce.

Dr. Coventry, late professor of agriculture, in the Edinburgh University, estimated, that upon medium soils, and in ordinary years, the average weight of the straw of wheat, barley and oats, per acre, would amount to 21 cwt—rye from one-fourth or one-third more;—"that supposing this dry straw to be moistened and rotted, it would thereby gain an addition to its weight of at least two-thirds, or between three-fourths and two-thirds of its gross weight—thus producing about 3½ tons of manure; and admitting that some corn is consumed in the feed of horses, as well as that the refuse of the grain, the chaff and light corn, besides the straw, go ultimately to the dung heap, one cannot reckon the amount of putrescent manure gained from an acre of such produce at more than four tons."—Though the Doctor's estimate is judged rather high, when cattle are fed only upon dry forage, it appears from the estimates of many eminent farmers, that one ton of straw, when augmented in weight by the dung and urine of turnip-fed stock, will, if properly managed, produce about four tons of farm-yard dung. A Berwickshire farmer, as stated by Sir John Sinclair, gives a single cart load of turnips per day to eight or ten cattle in the straw yard. He finds that, on an average for three years, from 2½ to 3 acres of straw will winter one of those oxen—no hay being fed—and in this way each acre of straw will produce about four cart loads of dung, each containing from 30 to 35 cubic feet. Meadows that cut 1½ tons of hay, are estimated to give 6 tons of manure per acre; clover, the first year, 6 tons, the second year 5½ tons; and that tillage and grass land, "without assuming any extraordinary degree of fertility or management, should yield, upon an average, at least 4 tons of manure per acre; to which, if be added the extraneous substances which may, with due care, be collected without expense from the roads, the ditches, the ponds, and from refuse of every kind about the house and premises, the acreable amount should be amply sufficient for a full supply of manure once during every course of the four year system of husbandry." Dr. Coventry, in estimating the quantity, has reference to common farm-yard dung, embracing the litter from the different offices, so far rotted as to be easily divisible by the dung-fork, and so dry as to have in it moisture only about two-thirds, or perhaps a little more, of its whole weight, and to be immediately applicable to the land.

"When cattle are well littered, and fully fed with turnips, it has been usually found, that about twelve of them will yield a one horse cart load of dung within 24 hours; but that quantity will scarcely be produced by 16, or even 18, if kept only on straw, with a small allowance of turnips." Here then is a fact worthy the farmer's notice: the turnip crop adds one half to the meat, end one third to the dung, of the farm. "It has been calculated that an acre of good turnips, with an adequate proportion of straw, will make upwards of 16 cart loads of dung;" but considering 10 the average, two acres will suffice to manure one. Arthur Young, with 6 horses, 4 cows and 9 hogs, which consumed 16 loads of hay, and 29 loads of straw, obtained 118 loads of dung, 36 bushels each. The cows and lean swine ran loose in the yard, and were fed in cribs; the horse stables and fat-hog sties were cleansed into the yards. Forty-five oxen, littered, while fattening, with 20 wagon loads of stubble, are said to have produced 600 tons of rotten dung. The value of dung is always in proportion to the nutriment contained in the food—the richest food producing the richest manure.

We intend soon to notice the extraneous matters which are available to farmers for increasing their dung heaps, and to offer some remarks on its application to the soil. In the mean time we will close this article by giving the rule for depositing dung in the field, previous to its being spread, so as to equalize it according to the quantity applied. By calculating the solid contents of the manure in cubical yards, each containing 27 bushels, and dividing it by the number of heaps, the exact quantity to be laid in each heap may be correctly ascertained. As for example—we wish to apply 20 loads, of 27 bushels each, at 5 yards distance, the number of heaps, as indicated below, will amount to 193—divide the total number of bushels—20+27=540—divide by the number of heaps,—193—and shows that each heap should contain 2.79 bushels.

No. of heaps at	5	yds.	193	per acre.
do	5½	do	160	do
do	6	do	134	do
do	6½	do	114	do
do	7	do	98	do
do	7½	do	86	do
do	8	do	75	do

BADEN CORN.

We have received from H. L. Ellsworth, Esq. of the Patent Office, Washington, a sample of corn, which is stated to produce from four to eight ears on a stalk. This corn was raised by Thomas N. Baden, near Nottingham, Prince George, Md. Mr. Baden began *twenty-three* years ago, to select his seed from stalks bearing two good ears, and he has continued to select from the best and most prolific stalks. For some years he did not discover much improvement; at length the quantity and quality began to improve, and the improvement was then very rapid. The corn is planted five feet apart each way, and two stalks left to grow in a hill; and the product, thus planted, has amounted to 120 bushels on an acre. This variety cannot but be a great acquisition at the south; and it may be so in the north, though we doubt whether it will ripen early enough in this climate. Gen. Porter, of Black Rock, informs us, that he last year raised some, identical, we think, with that we are noticing, which *did* ripen. We intend to publish the letters of Messrs. Ellsworth and Baden in our next, if our limits will permit.

The experiment of Mr. Baden is a strong corroborative proof of the correctness of the opinion of the late Joseph Cooper, that our farm crops may be improved upon the same principle that we improve our farm-stock—*by using only the best seed.* Many of our best varieties of grain have originated from a single stalk of superior excellence, saved by the careful farmer. This was the case with the Houpton oat; and we have just purchased a barrel of oats, weighing over forty pounds to the bushel, which have sprung from a single stem, grown in a field of barley, in Oneida. The difference in the varieties of grain, to the farmer, are immense. Had the corn crop of the north, the last summer, been wholly of the early Dutton variety, and planted early and upon dry ground, we doubt not it would have added a million of dollars to the value of our farm crops. The subject is one of great interest to the community, as well as to individuals, and every intelligent farmer should endeavor to improve both his vegetables and animals, by propagating only from superior samples. We cannot but notice the coincidence in the experiment of Mr. Baden, and that of Van Mons, in obtaining new varieties of the pear, and the *perseverance* in efforts to improve which both suggest. Mr. Baden perceived no great improvement *till after several years.* Dr. Van Mons, in his efforts to obtain improved varieties of the pear from seeds, did not expect success *before he reached the sixth generation of seedlings.* They both *did* succeed.

While we thus urge farmers to endeavor to improve their animal and vegetable products, by propagating only from the best, they are to bear in mind, that the ultimate product and profits of both, will depend in a great measure upon the manner in which they are fed and tended. Neither a short-horn cow, nor a Leicester sheep, nor a Berkshire pig, will fatten without food. Their intrinsic value consists in making a greater return of meat, when well fed, from a given quantity of food, than is made by inferior breeds. So with crops. The Dutton and the Baden corn will neither of them give one hundred and twenty bushels to the acre, unless the soil is rich, and the crop well tended. Manure feeds and makes the corn, as the forage feeds the animal and makes the meat. Neither the animal nor the vegetable can manufacture forage and dung into meat and grain, unless it is placed within their reach. The Dutton and Baden corn, like the improved animals, are valued for the economy with which they convert food into solid grain, and the former, also, for its early ripening.

The silk business.—There is at least one substantial objection against attempting to raise two generations of silk worms in a season, viz. that it tends to kill the trees. If the mulberry will bear to be stript of its leaves once, it will not bear to be served so repeatedly, in the same season; and if there is a sufficiency of trees for two crops of silk, it is best to double the number of worms in the first; for the young leaves of spring are better for young worms than the old leaves of summer. Leaves make roots as well as silk; they are necessary to the life of the tree, and unless the leaves perform their office to the roots, the roots will soon cease to perform their office to the leaves. There is a mutual dependence between them. We have seen from the parliamentary reports of Britain, that children there are made to perform, in factories, 12 to 16 hours labor in 24, no doubt to the profit of the owners; and we have seen that these poor children become diseased, and ruined in their constitution, by reason of this violation of nature's laws—which ordain rest to the child, and leaves to the tree. Her laws cannot be violated with impunity, either in the vegetable or animal kingdom.

On cutting cattle food.—A diversity of opinions exist among some of our correspondents, as to the length which hay and straw is most advantageously cut for horses and cattle—one party contending that an inch is short enough, and the other that it is not. We incline to the former opinion, and we would respectfully offer our reasons.—The object in using the straw cutter is to prevent waste, and to facilitate the process of mastication. It is not enough to get the food into the stomach, but it should go there in a proper condition for easy digestion—in a perfect masticated form, the fibre broken down, and intimately incorporated with the saliva of the glands. It is uniformly enjoined upon persons who are sickly, or have weak stomachs, and it is a common admonition to the hale, to eat slow, and to chew well their food before they swallow it, that it may more readily digest. And we see that cattle, high fed with corn and oats, often void the perfect grain, without its having benefitted them a particle. Whether this would not be more or less the case with fine cut hay, we cannot judge from observation, but we are told it would be so.—There is another difficulty to be apprehended from short cut food, if given to ruminating animals, as cattle or sheep, which chew the cud—that they would be very liable to lose this indispensable requisite to health. At all events, there can be no doubt, that all solid food should be perfectly chewed, and mixed thoroughly with saliva, before it passes to the stomach of the animal—the grain crushed, and the fibre of hay and straw broken by the teeth. To ensure this we doubt whether forage should be cut shorter than an inch, or an inch and a half. A gentleman who had fed largely with very fine cut hay, found that much was voided in an undigested state, tinged with blood from the intestines, and that his cattle, after a few weeks, ceased to thrive.

Cob Cracker.—We are inquired of, by a correspondent in Maryland, in relation to a machine for crushing, or grinding, corn and corn cob, by manual or horse power. We have seen these machines that were propelled by water power; but we know of none now in our vicinity, and regret that it is not in our power to satisfy our correspondent's inquiries.

The practice is gaining ground among our best farmers, of employing a portable horse power for various farm purposes,—as threshing grain, grinding apples, coarse grain, sawing wood, slitting boards, cutting cattle fodder, and turning the grindstone—and it may also be applied to the crushing of corn cobs. The expense of adjusting all these operations so as to be performed by a portable horse power, can be no serious obstacle upon a large farm, where most of these operations are necessarily carried on,—whilst it must be much more than counterbalanced by the saving in time and labor incident to managing them by manual power. We have had described to us this kind of economical arrangement; yet we are not enough familiar with the details to justify us to lay down the plan, to state the details, or to give an estimate of the cost. We should be very much obliged to any gentleman who has adopted this arrangement, or to the mechanic who has fitted up the machinery, for a communication upon this subject. There are several models of horse power adapted to the purpose, as also threshing and cutting machines, grinders, crushers and saws. The desideratum is to select the best of each, and to arrange them for use in the most convenient and economical way.

"*Long manure.*"—Vegetable and animal matters, when brought into a state of fermentation, by the agency of air, heat and moisture, immediately give off carbonic acid gas, which, if confined beneath the surface of the soil, will become mixed with the moisture there, and be taken up by the roots of plants. And what is carbonic acid gas? It is composed of two parts of oxygen, a constituent of atmospheric air, and one part of carbon, the principal constituent of plants, rendered volatile by the heat of fermentation. It is the digested food of plants; it becomes incorporated with water in the soil; is taken up by the spongeoles or roots of plants; transmitted through the sap vessels to the leaves; is there decomposed by the sun's rays; the oxygen passes into the atmosphere; the carbon passes down through another set of vessels, and being gradually disengaged from the water which conveys it, by evaporation, it becomes a solid substance of the plant. Carbon constitutes principally the structure of the stems, branches, and roots of plants, and it can only find access into plants in a fluid state, combined with oxygen. From this view of the matter, the reader will understand why we recommend long manure for hoed autumnal ripening crops, —and why we insist that one half of the value of cattle dung is lost by suffering it to be reduced to the condition of short muck before it is buried in the soil. All vegetable matters contain more or less carbon; and carbonic acid gas is invariably produced in the fermenting and putrifying processes.

Indian corn crop.—We publish to-day a very interesting communication on the culture and profits of a corn crop, from H. Bowers, of Northampton, Mass. It affords a good illustration of the advantages of improved husbandry—scarcely any part of the culture, or of the harvesting, being managed in the old way. The species of corn grown is the same that we have cultivated for a dozen years, and is the same which has been highly commended by Judge Lathrop, of Springfield, and other cultivators. It has never been injured by autumnal frosts in our grounds, ripening and being harvested before their occurrence; and in 1828 the crop being in the crib the first week in September. We harvested last year a few days earlier than Mr. Bowers, and made, as our southern friends say, from our limited culture, about 200 bushels of prime seed ears.

Dung.—It is common, at this season, to haul to the fields, the dung destined for the spring crops. Fermentation and waste often ensue before it is buried in the soil. To avoid this loss—we allude to unfermented dung—the dung should be laid in compact piles, of not exceeding eight loads, where most convenient to be distributed, and, as soon as the ground becomes thawed, covered with six or eight inches of earth, and the surface smoothed with the spade. The manure will seldom ferment before the ground thaws. The earthy covering imbibes the gaseous matters, and protects the dung from the wasting influence of the weather. When crops are dunged in the hill or furrow, with long manure, the dung sometimes fails to rot, for want of moisture to bring on fermentation, and is consequently of no benefit to the crop. When the dung is spread broadcast, and ploughed under, this difficulty never occurs, and the dung becomes better incorporated with the soil.

Brooks' Silk Spinner and Twister gave great satisfaction to all who saw its performance, and it stands highly commended in the proceedings of the Agricultural Convention. With it a woman will convert half a bushel of cocoons into sewing silk in a day, or into twist, or into single, double or threble threads, of any required fineness. The machines will be kept for sale at W. Thorburn's—price, for family use, thirty to forty dollars.

FACTS IN THE SCIENCE OF AGRICULTURE.

BY PROFESSOR RENNIE.

Lime.—If quick lime, either fresh burned or slaked, be mixed with moist vegetable substances, however hard and fibrous, it soon destroys their texture, and forms a mixture, the greater part of which can be dissolved in water, thus rendering what was previously useless, fit for the food of plants. [Hence the utility of applying quick-lime to reclaimed swamps, or other soils abounding in woody fibre.]

On the other hand, it is injurious to mix quick lime with vegetable substances already soluble in water, or with any sort of dung, or other animal manure, lest it should take up too much humic acid.—[Humic acid may be termed the *essence of dung*, combined with oxygen.]

Sugar and gluten.—There are few plants that do not contain sugar, which chemists have shown to be a compound of about three parts carbon, four parts oxygen, and eight parts of hydrogen.

It would follow, therefore, that it is not necessary to be introduced into the soil in the state of sugar, the constituents being always more or less contained in the water, and most probably combined into sugar after entering the system of a plant. This applies also to starch, which is composed on the same principles, and may indeed be converted into sugar, as was lately discovered; and gluten differs only in containing nitrogen. [Gluten is the substance which imparts nutriment to wheat in a greater degree than is possessed by other grain.]

Flavor, color, &c.—All flavor, color, smell, and nutritive qualities, depend for their production chiefly on the action of light. The red color of forced rhubarb, [and of the blood beet,] which seems to be an exception, arises from the red matter previously produced by the agency of light being carried down to the root. [Hence celery is blanched to divest it of its otherwise acrid taste—and hence fruits growing in deep shade, are more vapid and colorless than those growing in an open exposure.]

Heat.—The soil of this country, below where the frost usually penetrates, averages a temperature of 48 degrees, or fifteen degrees above freezing, which is the reason why springs do not freeze, and not any quality in the spring water, which will freeze readily enough when taken from the well. [And this explains why spring water, retaining always near the same temperature, appears cold in the heat of summer, and warm during the cold of winter.]

Radiation is the spreading of heat, which arises from heat passing from a hot body to a colder one near it, as uniformly as water runs down a slope. This spreading of heat takes place between the surface of the ground and air; and when the air is cold, though the soil be warm, it soon loses its heat, and dew or hoar frost is formed on the grass, by the moisture diffused in the air, though previously invisible, becoming condensed or frozen. But when the sky is covered by clouds, this spreading and loss of heat is, in a great measure, prevented, and hence there is no dew or hoar frost on a calm cloudy night. It is on this principle, that garden plants are protected by matting, which stops the heat of the soil from spreading about and being lost in the air. Dr. Wells proved this by stretching a very thin cambrick handkerchief, two feet square, six inches above a grass plat; and he found on one night, that it was five degrees warmer under the handkerchief than on the rest of the grass plat; and on another night, there was eight degrees of difference. The screen should not touch the soil, or the plants to be protected. In this case it might carry off heat by conduction.

It is on the same principle that snow affords a protection from the severity of frost, the plants under snow having been found, by Dr. Darwin, to indicate forty degrees, that is eight degrees above freezing; hence some alpine and Siberian plants, do not bear exposure to frosts when unprotected by snow, so well as those which are natives of a warmer clime.

A reason for a slope or a hill being warmer than a valley, is that cold air being heavier than warm air, the coldest air always rolls down to the lowest situation; but if there be a brisk running stream in a valley, it will prevent, in some measure, the stagnation of cold air; injurious, because the greatest cold always occurs in air having the least motion. Prof. Daniel says he has seen a difference of 30 degrees on the same night, between two thermometers, one placed on an elevation and another in a sheltered situation. Daniel also states, that the same surface which, in a calm state of the air, would give off 100 parts of moisture, would yield 125 in a moderate breeze, and 150 in a high wind.

COMMON SCHOOLS AND THE SURPLUS FUND.

It seems to be the fashion of the day with all parties—and fashions run as rampant in politics as they do in dress,—to throw all our surplus means, even the millions of the surplus revenue, into the common school fund. It is not our province, nor our intention, to scan motives, yet it is our privilege to examine the policy of the proposition; and this we propose now to do.

The annual distribution of the interest of the common school fund now amounts to 110 to $120,000 per annum, and constitutes nearly one-half of the monies expended in the state, annually, for the pay of common school teachers. The distribution of this money has produced the effect originally designed: it has led to the establishment of schools, and to their maintenance, for at least a portion of the year, in all, or nearly all, of the school districts in the state, and it has placed within reach of the poor, as well as the rich, all the benefits of these schools. Now the question at issue is, whether another like appropriation, applied in like manner, would tend materially to increase the usefulness of these schools,—or whether it would not, on the contrary, by relaxing individual exertion, the material stimulant to improvement, tend to diminish their benefits, and deteriorate them in character. So far as these means can be applied to improve the qualifications of teachers, and to raise the standard of instruction, by furnishing suitable books and apparatus, and manual employments, so far they may be profitably applied; but these would require but a small part of the amount proposed to be added to the fund, and would not be likely to become objects of expenditure, unless appropriations are specifically made for them. The son who depends upon a rich father for suppport, and who from this expectancy, is allowed to follow the natural bent of his inclination in pursuit of pleasure, too often becomes a useless member of society; while the child of the poor parent, who has to rely wholly upon his personal exertions for character and fortune—and who bends to this noble purpose, from necessity, the powers of his mind and body, not unfrequently rises to the highest scale of usefulness. We fear, that by too lavish an expenditure, we should sink our school districts to the condition of the rich man's son. Men do not prize sufficiently the blessings, which, like the dews of heaven, fall upon them unasked; but they ever put a high value upon those which they earn by their own industry. The first cost nothing, and are but momentarily regarded, and as common place matters. But those they achieve themselves, are bought with their personal means and efforts, are highly prized, and ever retain an intrinsic value. The tree that is protected in its growth by the wide spreading and towering pine, is less tough and lasting, than that which has grown up unsheltered and unprotected, in despite of the buffetings of storms, in the open field. The prince and the peasant, as the fable teaches, were cast shipwrecked together upon an island. The latter had learned, from necessity, to provide for himself,—and this provident knowledge enabled him to supply the wants of his helpless companion. The illustration will not be mistaken. Both the man and the tree became more useful from the early habit of being obliged to take care of themselves.

But we will dismiss all metaphor, and reason upon facts—facts of general notoriety, which have transpired, or are transpiring in our day and country.

Our native state, *Connecticut*, was the first state to set apart a fund for the support of common schools; and we believe that this fund is now larger, according to her population, than that of any state in the union. Has the character of her schools been advanced, or their usefulness been enlarged, by the munificent *public* expenditures for their support? Is her population more wealthy in consequence of the saving which it has enabled them to make, or are they more intelligent than their neighbors? Truth, we are afraid, will respond in the negative to all these questions. We have heard the remark made, by intelligent men of that state, that the public provision for the maintenance of her common schools, has had a tendency to relax the personal exertions of her citizens, and to abate their zeal to improve their condition; that since the legislature have assumed their supervision in part, the people have evinced an apathy in providing suitably for them; and that consequently their improvement has not kept pace with the spirit and intelligence of the age. We do not ask all this concession. We ask, merely, that the character of her schools, and of her population, for intelligence and useful enterprise, may be compared with those of her sister

Massachusetts, who has never had a common school fund, but whose schools have been exclusively supported by the liberal individual efforts of her population. We ask those who advocate the application of all our surplus means, to our common school fund, to point to the advantages which Connecticut enjoys, over Massachusetts, in the character of her schools, or in the beneficial influences which these schools have produced, upon the wealth, intelligence, and moral condition of society. We would point to Vermont, Maine, New-Hampshire, and Rhode Island, as affording further illustration, that the unaided energies of our population are sufficient, and most efficient, in the establishment and maintenance of good schools.

We lack not so much in the *means* of supporting schools, as we do in the *method* and *measures* of instruction. Common schools should teach the *useful* branches of knowledge. We wish our boys not only fitted to discharge their duties to society, in any public capacity to which they may be called, but we wish them instructed in some useful business, by which they can, in manhood, live comfortably and respectably. The period of puberty hardly suffices to acquire, separately, both branches of instruction, to the extent which is demanded by the age. But if studies were more adapted to the duties and business of manhood—if instead of continual change, according to the caprice of every new master, properly selected books, of standard worth, pertaining to the business of life, and calculated to imbue the mind of the pupil with a just sense of his rights, and of his duty to society,—were made class books for the senior boys, and to constitute a district school library, for the benefit of parents as well as children; and if, simultaneously, the boy could be instructed, four to six hours a day, as he could be without detriment to his studies,—in the *practice* of some useful art,—he would come into manhood ripe for usefulness, with a hale constitution, a body inured to labor, habits of application and usefulness, and a mind enlarged and illuminated by science, and devoted to the good of the commonwealth.

How many hundreds may now be pointed out, of liberal education, who are mere cyphers in society, *for want of early habits of application to labor*—how many do we see, degraded by ignorance and venal habits, among the working classes, *for want of the early habits of mental improvement*,—all of which labor schools would tend to form and infix.

The unprecedented progress which has been made by the French nation, in the culture of the beet, and in the manufacture of indigenous sugar, has been brought about by schools of instruction, established by the government, specially to teach the culture, and the process of manufacture, practically and scientifically. M. Iznard, the French consul at Boston, was assigned to the care of one of these schools, established at Strasburgh. Can any one doubt, that the French nation has been amply remunerated, for this outlay of capital, by the annual production of 80,000,000 pounds of sugar from the soil; and the vast improvement which has thereby accrued to her agriculture? We also anticipate great beneficial results from the beet culture, and the silk business, and if these branches of labor are correctly and efficiently taught in schools of public instruction, the advantages to the nation must be palpable and abiding.

The executive has recommended, that the interest of the surplus fund be applied to education, but has left the details to legislative wisdom. We have taken the freedom to point out good reasons, as we believe, why it should not *all* go to the common school fund, and to suggest how a portion of it may be applied, with great and certain public advantage. Without intending to disparage our colleges or academies, of neither of which do we lack in numbers, it is sufficient to say, that they do not all supply what is now most needed—they comparatively teach nothing of science or art to the laboring classes, who constitute the great bulk of our population, and who are our wealth, and our strength. Education is said to be the cheapest defence of a nation; but to be efficient, it must be general—it must be impartial.

"NOTICE ON THE BEET SUGAR,"

Is the title of a pamphlet politely sent us by the publisher, J. H. Butler, of Northampton, and which we have read with much interest. It is compiled from recent French works, by Edward Church, late a resident of France, who has added the result of his personal observation, and we believe of his practice there. It treats fully of the culture of the beet, and of the process of extracting its sugar. Its perusal has confirmed us in the opinion, already expressed, that the culture of the beet, and the manufacture of sugar from it, is adapted to our climate, soil and wants, and that ere long it will constitute an important branch of our national industry. We subjoin a very brief synopsis of the first part, relating to the beet culture, and refer those who design to embark in the manufacture to the work itself.

Variety.—The white Silesian is preferred; the yellow is next in order; because, being smaller, they abound more in sugar, and are more easily kept—though all the varieties afford the saccharine matter. Plants for *seed* should be set three feet apart, and we should add, supported by a stake; and when ripe, the seed should be perfectly dried before it is packed for market or use.

Soils.—Rich deep loams, neither too wet nor dry. From the writer's remarks, the culture seems better adapted to the northern than the middle states, the root containing more sugar which is raised in the north of Europe, than that raised in the south.

Preparation of the ground.—Oats, or wheat [or perhaps corn] manured, to precede, and the ground to be worked deep, and perfectly broken and pulverized.

Manures are recommended to be applied to the previous crop, or in the previous autumn. We will venture to recommend a trial of long dung, well and perfectly buried with the plough, before sowing the crop.

Sowing.—Sow as soon as the ground can be put into good order, say the first to the tenth of May, that if the seed fails, the sowing may be repeated in time for a crop. Seven to eight pounds of seed sown to the acre. It is recommended to sow in drills, to thin the crop, and transplant when necessary—distance between the drills two and a half feet; between the plants one foot or more.

Weeding.—The crop is thrice wed—the horse hoe or cultivator may be employed—the hoe and hands are used by women and children.

Gathering the crop.—The period for gathering known by the leaves ceasing to grow; they become covered with brown spots, are curly, droop, and assume a yellow tint. Should be gathered in dry weather. They are dug with a spade; a boy beats off the dirt, by striking two together, and lays them down in a line; and a third person cuts off the tops with a spade, taking only the extreme neck. They are afterwards collected in piles, and carted to the store house, or buried in pits—if in the latter, the pits are covered with earth to exclude frost, and ventilated in the manner we have recommended for ruta baga.

Water Proofs Boots and Shoes.—From having for several years experienced its efficacy, we recommend the following composition to render boots and shoes impervious to water, with the single remark, that it is enjoined, among the primary rules of health, to "*keep the feet warm.*" The composition is: Tallow, half a pound; hog's lard, four ounces; turpentine, new bees' wax, and olive oil, each two ounces. Melt the materials together by a gentle heat, and rub with the mixture the boots or shoes, upper and under leather, the night before they are wanted. The better way is, to give the boots or shoes two or three coatings of the composition, at intervals, before they are worn at all. We have been days in snow water, in boots thus prepared, without the least inconvenience to the feet.

PRESSING HAY.

We have obtained from A. Van Bergen, Esq. copies of queries addressed to him, and of his answers thereto, relative to the expense and advantages of pressing hay for market, and to the character of Lampman's Patent Hay-Press, which we publish from a belief that they will prove interesting to many of our readers.

Question 1. Is the hay-press you use the best in the country, as far as you know, or is there any other, *and where*, that can compete with it?

Answer.—The hay-press I use is the best in the country, and in general use. I know of no better.

Q. 2. What is the power required to press the hay? How many oxen, horses, men or boys, are employed in the work, and how many tons will it press in a day?

A. The power required to press the hay is furnished by one horse, (no oxen.) Three men will press from five to six tons per day.

Q. 3. What is the cost of the press, and putting the same up complete, *without the building?* Is it liable to get out of order, and does it require a philosopher to manage it, or can a man of common sense and industry manage and keep it in order?

A. The cost of the press, and of putting it up complete for use, is $150. It is not liable to get out of order, does not require a philosopher to manage it, and a man of common sense can manage it. It is simple in its construction.

Q. 4. Is hay *better*, or *worse*, for being pressed? How long will it keep in good order and condition? Is there any other advantage in pressing hay, besides *the facility of removing it*, and thereby keeping a large quantity in a small space?

A. Hay is not injured by pressing, if packed in good order—will keep any length of time sweet, if kept dry. The advantage of pressing hay, other than keeping a large quantity in a small space, is shipping it to a foreign market, which cannot be done in bulk.

Q. 5. Is there any other suggestion you can make on the subject, that will be beneficial to one ignorant of the business of pressing hay?

A. Care should be taken in selecting the different qualities and kinds of hay in distinct *bays* or *mows*, so as to have no mixture, as timothy hay is most in request and will command a better price in market than finer grasses. I avoid packing clover hay. Hay will lose in weight, if packed in wet or damp weather, and if it is not well seasoned in the mow, will damage in the bale, and mould and mat together. Hay from the meadow will not do to press, unless for immediate use. I season my hay in the mow 60 days, it will then bear transportation to any market. Heavy bales, say 400 to 500 lbs. are preferred by shippers in a small compass, say 24 to 26 feet, as it is frequently shipped by the foot, most generally by the bundle. I send from my farm from 300 to 400 tons to the New-York market, to be sold there or be shipped to a foreign market to my account. I employ men to press my hay by the ton, furnishing them a *horse*, *hook*, *lath*, *nails*, &c. They perform the labor of pressing and stowing the bales in a convenient place in the building in good order—board themselves—at 62½ to 75 cents per ton, or 2000 lbs. I refer you to my son, Peter A. Van Bergen, attorney at law, 122 Nassau-street, who is well acquainted with my mode of pressing hay, who will, with pleasure, give you more information on the subject than now suggests itself to me. He is well acquainted with the building of my presses, and may possibly facilitate your operations in the execution of your press, should you be inclined to put one up.

An excellent Institution was three years ago organized at Boston, called the Boston Asylum and Farm School. The association established their farm school on an island near that city, as an asylum and school of instruction for destitute boys. The third annual report is interesting. The school has 107 boys, probably reclaimed from want and vice, and receiving instruction in useful knowledge, in morals and in labor. They work upon the farm, in the garden, and at mechanical employments, and are instructed in geography, the use of the globes, botany, singing, reading, &c. This is truly an excellent institution, and may be termed a manufactory of useful men from useless boys. We have the raw material in great abundance, in the higher as well as in the lower walks of life; and we rejoice to find a disposition, any where, to convert it into a useful commodity.

STARCH AND SUGAR.

Every plant that contains starch, as the beet, carrot, parsnip and potato, may be made, probably, to yield sugar,—if foreign matters, colour and flavor can be got rid of. The means of doing this it is the province of science and chemistry to discover and apply. According to the analysis of chemists, the elementary matters of starch and sugar are similar, though in different proportions, and starch is readily converted into sugar by chemical process. The sugar of the beet, which France now produces in immense quantities, has naturally, Davy says, a slight bitter taste; but chemistry has enabled us to render it as pure as the sugar of the cane, both in appearance and in flavor. Potatoes contain, according to Einhoff, more than one-sixth of pure starch, and about one-fourteenth of other matter, analogous to starch, and according to Davy, one-sixth to one-seventh of dry starch. The potato yields according to quality, and the analysis of Skrimshire gave from 8¼ to 12 parts of starch in 60 parts of the root. Davy obtained from 1,000 parts of the turnip, 34 of saccharine matter; from 1,000 parts of the carrot, 95 parts of sugar, while the parsnip afforded 90 parts in 1,000, of saccharine matter. The quantity of saccharine matter, or sugar, in 1,000 parts of the undernamed is given by Davy as follows:

Red beet,	121	Carrot,	95
White beet,	119	Common turnips,	34
Parsnip,	90	Ruta baga,	51

These facts show the importance of science in supplying the wants of society, and inculcate the propriety of diffusing its principles and its benefits among that portion of our population who are employed in the acts of labor, and who seem most likely to make it subservient to the public weal.

TILLAGE HUSBANDRY.

We find, in works upon British husbandry, much that is calculated to aid and instruct the American farmer; and much, blended with the useful, that is either not adapted to our climate or our practice. To suit our measure to our cloth, and to discharge our duty in the best way we can, we propose to *abstract*, and occasionally *extract*, such matters as may present in our reading, and as we deem useful, and to add thereto the results of our own experience and observation, wherever we may deem them pertinent. These abstracts, for the present, will relate principally to tillage husbandry.

HINTS ON THE GROWTH OF GRAIN.

CHEMICAL COMPOSITION.

The compounds in vegetables really nutritive are very few; *farina*, or the pure matter of starch, gluten, sugar, vegetable jelly, oil and extract—of these the most nutritive is gluten, which approaches nearest in its nature to animal matter, and which is the substance that gives to wheat its superiority over every other grain. The next in order as to nourishing power is oil, then sugar, then starch, and last of all gelatinous and extractive matters. Sugar and farina, or starch, are however very similar in composition, and are capable of being converted into each other by a simple chemical process.—All the varieties of substances found in plants, are produced from the sap, and the sap of plants is derived from water, or from the fluids of the soil, and it is attended by, or combined with, principles derived from the atmosphere.—*Davy.*

WEIGHT.

The common and standard weights of grain are:—

	Common Weight.	*Standard Weight.*
Of Wheat,	from 58 to 64	60 lbs.
Rye,	49 to 56	56
Barley,	48 to 56	48
Oats,	30 to 42	32
Indian Corn,	54 to 62	56

SEED,

Of every kind, should attain full maturity ere it is sown. The farina in the seed constitutes the nourishment of the embryo plant, as the egg does of the young chicken, until the roots are grown sufficiently to provide for themselves. The farina has become fully developed only when the seed has attained maturity. The more abundant the nourishment in the seed, the more healthy and vigorous the plant which it nourishes. Hence not only ripe, but perfect and plump seed should be selected. A weak embryo is not likely to produce a strong plant; for although the soil abound in food, a healthy vigorous plant will take up much more food than one that is lean and shrivelled. In the Indian corn crop, weak, feeble plants are often perceptible in a hill, which give little or no corn. Hence the utility of putting in a double quantity of seed, that the weak plants may be extirpated, at the first dressing, and strong ones enough left to fill the ground. It is a good plan in regard to seed corn, to put a dozen or twenty seeds in a flower-pot, or some vessel filled with earth, two or three weeks before planting time, to water the earth, and to set the pot in the sun in a window of the dwelling. It will be then seen in time whether the seed will grow, and what portion of it. The importance of select seed has been amply demonstrated by the fact, that many valuable varieties have originated from a single ear, distinguished by remarkable properties, and which has been propagated separately.

The time most favorable for depositing seeds in the ground, depends upon their habits and the condition of the soil. Barley, rye, corn and buckwheat germinate best upon a dry warm soil; wheat and oats upon one that is moist. Spring grain, as wheat, rye, barley and oats, should be sown as early as the ground will permit, as the ordinary spring frosts seldom seriously affect them; corn and potatoes, as soon as the season will justify, so as to escape the early frosts. In this latitude the best time for corn is between the 12th and 20th May. Late planted corn seldom matures well, and the experience of late years justifies the early planting of potatoes.—Seeds indigenous to warmer latitudes, as the melon, cucumber, Lima bean, and many other garden productions, should not be sown until the ground has obtained a natural warmth sufficient to ensure a prompt germination.

The depth at which grain should be sown is a matter of some importance, though not enough regarded. Heat, above 32 of Fahrenheit, air and moisture, are all necessary to the germination of seeds. Without heat and moisture, they would remain dormant; with them, and without air, they will rot. All these being present, a seed imbibes moisture through its outward covering, the heat and air convert its farina into a fluid, of milky appearance, and of a sweetish taste, which nourishes the young plant, the root first, and then the stem, till it can provide for its own wants,—which is when the root extracts water, &c. from the soil, and the first leaves elaborate it into food. The conclusion resulting from these facts is, that seeds should be deposited so near the surface as to receive the vivifying influence of the sun and atmosphere, and yet be so covered as to secure to them a due degree of moisture, and to exclude light.—Hence the utility of sowing shallow, to secure the agency of heat and air, and of compressing the earth upon seeds, with the hoe or roller, to secure moisture. Soils differ. Upon porous and sandy ones, heat and air penetrate deeper, and moisture sooner evaporates. Thus a stiff soil requires less covering than a light one. Wheat has two sets of roots; one springing immediately from the seed, termed *seminal*, or seed roots; the other immediately below the surface of the soil, called *coronal* roots. These latter are subject to be chilled and injured by an early frost, and if the seed be not sown at a proper medium depth, the seminal roots may be also exposed to similar attacks; which forms a strong reason for early sowing. Wheat, barley and oats require more covering than rye and buckwheat. The depth may be varied from 1½ to 3 inches.

The quantity of seed to be sown per acre, should be dictated by experience. In Britain, much larger quantities are sown than with us. Much depends upon soil. A rich soil will carry more plants than a poor one; but even in a rich soil, the thinner the plants are, the more they will tiller. Something depends too upon the time of sowing. Early sown winter grain requires less seed than late sown. For the first, five pecks of wheat or rye are ordinarily sown; for the latter, six, seven, and eight pecks are sometimes given to the acre. If grain is too thick, the shoots exhaust each other, acquire a yellow dusky tinge, and if the season be unfavorable, many of them perish. The roller upon the young crop, by often burying the crown, inclines the plants to tiller better, that is, to throw up more seed stocks.—Von Thaer condemns the practice, prevalent upon the marsh lands of the Oder, of seeding with eight bushels of oats to the acre, and affirms, that he gets the best crops where he has only five or six plants to the square foot. An instance is quoted in the Quarterly Journal of Agriculture, of two-thirds of a crop of potato oats being destroyed by the grub, and yet from the luxuriant growth of the remaining third, the yield was 60 bushels of fine grain to the acre.

A change of seed is strongly advocated by some, and thought unnecessary by others. Among the latter, was the late T. Cooper, of New-Jersey, who considered that varieties improved under his careful management in using only his select seed. The weight of testimony, as well as our experience, seems to be in favor of change. The writer of British Husbandry advises, that seed be procured from land of an inferior quality, as well as from a drier climate; for strong lands, from poor light soils, or from the fens; and for friable loams, from stiff clays—and avers, that a shrivelled sample of wheat, from a poor gravel, has produced a beautiful crop when sown upon adhesive clay. Wheat may be sown when one year old, but rye, barley and oats are always preferred for seed when of the last harvest.

The injury of frost upon winter grain does not depend so much upon its severity, as upon sudden changes of weather, and upon the condition of the soil in regard to moisture. In long continued frosts, which have penetrated below the roots of grain, the plants have tillered with extraordinary luxuriance in the ensuing spring, and the sharpest winters have generally been productive of the most abundant crops. Sunny days and frosty nights are very trying, especially when there is not slope enough to carry off the water as it falls or melts from snow, as the ground being yet frozen, it cannot sink into the soil; and the ground being thawed during the day, shrinks from the roots, which thus become exposed to the frost of the night, and the most vigorous plants find great difficulty in resisting these alternate changes of the weather. The best preventives of the evil is, upon level surfaces, to sow upon ridges, and to use the roller, and perhaps first the harrow, as early in the spring as the state of the ground will permit.

Ripeness. If grain is suffered to become dead ripe before it is cut, considerable loss must inevitably result from the depredations of birds and insects, and the shelling of the grain in the process of harvesting,—and the straw is much diminished in its nutritious properties. And besides, although the grain may be subject to some shrinkage, it is contended that both wheat and rye make the best flour when cut before the kernel becomes perfectly hard, and if not too early, that the grain is brighter and of a better color. It is generally conceded, that, from these considerations, it is better to cut them before they are fully ripe.

The grain of each species produces, when ripe, nearly the following quantities of meal, or household flour, and bread, per bushel, namely—

Wheat,	if weighing	60 lbs.	of Flour,	48 lbs.	of bread	64 lbs.
Rye,	do	54	do	42	do	56
Barley,	do	48	do	37½	do	50
Oats,	do	40	do	22½	do	30

[*See British Husbandry.*

Agriculture in Maryland.—Petitions are before the legislature of Maryland, praying the establishment of

"1. An agricultural school and pattern farm.

"2. A general state agricultural society, to be formed by delegates from county establishments.

"3. County agricultural societies, to be voluntarily formed.

"4. That the state grant bounties in the silk and beet sugar business. And,

"5. That facts in regard to the latter be collected, published and distributed, at the expense of the state."

The Rural Library—Is the title of a monthly agricultural work, of 32 8vo. pages each number, published at New-York, by S. Fleet, former editor of the New-York Farmer, at $3 per annum. It is intended to comprise standard works on Farming and Gardening, selected and original. The second number, which has reached us, is well executed. Subscriptions will be received at this office.

To Printers.—Our exchange is already extensive, and is increasing. Our monthly sheet does not offer an equivalent for one published weekly or semi-weekly; while on the other hand we can derive but little benefit from any but agricultural or horticultural publications. To benefit both parties, we propose to conductors of newspapers, that instead of their papers, they send us ten subscribers, and a $5 bill, and receive the Cultivator as their commission. This arrangement, while it cannot prejudice their interest, or give them much trouble, will save them the price of their paper, and extend our (we believe) useful circulation.

Exculpatory.—We have been advised by a highly respectable correspondent, that G. Page, Esq. P. M. at Morristown, N. J. feels himself aggrieved by our notice of the failure of monies by mail; that Mr. Page exerted himself to trace the lost letter, mailed at his office, and that he obtained at Philadelphia the way-bill which accompanied the letter to that post-office, thus showing that the missing letter was sent from his office. We implicated no one, but gave merely a statement of facts, leaving the public to draw their own conclusions. We consider that Mr. P. is wholly exculpated from blame.

Acknowledgments.—We have received from Gen. Tallmadge, madder seed from France, and Russian seeds of the cucumber, and of ornamental plants; from H. L. Ellsworth, Esq. Washington, a sample of the Baden corn; from Mr. Allen, of Chili, South America, samples of Chilian wheat. We tender to the gentlemen our thanks for these favors.

TO CORRESPONDENTS.

We have many communications on hand, which will receive as early a notice as our limits and leisure will permit.

"A Subscriber," who addressed queries to Mr. Ball, is informed, that answers to his queries have been left for him with the conductor. We beg it to be understood, that we do not hold ourselves bound to respond to the inquiries of anonymous correspondents, unless their object is manifestly to elicit useful information in the business of husbandry; and where this *is* the object, there is no substantial reason for withholding the inquirer's true name.

Gentlemen who have sent us mineral specimens for analysis, are advised that we make no pretensions to geological science, and that Prof. Mather advertises to analyze minerals, &c. on moderate terms. See his advertisement on our advertising sheet.

CORRESPONDENCE.

THE MULBERRY—DIFFERENT SPECIES.

To the Editor of the Cultivator—Sir,—With your leave, I avail myself of the columns of your widely circulated periodical, to communicate to the silk culturists of the country, some information which appears to me to be of great importance to them. I am one of those who firmly believe, that the culture of silk in the United States, is of immense interest, regarded either as a national or individual concern, and I am rejoiced to see that this conviction has already taken root, and is daily extending among the intelligent and patriotic citizens, so as to ensure its success.

It is my purpose to speak in this communication, of several species of the mulberry, and of the qualities of their leaves as food for the silk worm, and their resistance to the rigors of our northern winters.

The Morus Alba, or white Italian, it is certain, affords an excellent aliment for the worm, and at the same time is capable of enduring our severest cold weather. The branches of this tree are sometimes affected by frosts, especially if the autumn is unfavorable, and the wood has not been matured; but generally speaking, it is as hardy a tree as the apple. The silk produced from its leaves, is of a good quality, and well reeled and manufactured, makes beautiful fabrics. If we had no other species of the mulberry, we ought to be satisfied with this kind.

Much has been written and said of the Chinese, or Morus Multicaulis, and the expectations of the silk culturist have been highly excited as to the great value and importance of this species. It is a beautiful tree as regards the size and brilliancy of its leaves; and the facility with which it can be propagated, and its leaves gathered, would strongly recommend it to notice and cultivation. The question of the most importance is, what are the qualities of its leaves? It is well ascertained, that the quality of silk depends on the nutritive qualities of the mulberry leaves. Count Dandalo, than whom there is no higher authority, says, that "the leaves of the broad leaved white mulberry contain but little saccharine matter," and you make the remark, which I believe to be correct, in the last number of the Cultivator, that "both the fabrics and raw silk from our native mulberry, although they do not excel in softness and beauty, they appear equal to any in strength and durability." Gen. Tallmadge's information, that the Italian sewing silk, which stands so high, is neither produced from the white mulberry nor the multicaulis, but from the indigenous mulberry of the country, the black or *Morus Nigra*, confirms the position that the quality of the silk depends entirely on the quality of the leaf.

With these preliminary remarks, I state, that I received a letter from Mr. Andrie Michaux, under date of the 4th of July last, at Paris, containing the following remarks:—"The *Morus Multicaulis* does not answer the expectation it raised. Already we have ascertained that its leaves are not as suitable for the nourishment of the silk worm as those of the common white mulberry tree. A method has been introduced, that promises to be advantageous, and has succeeded so far very well. It is to graft or inoculate near the earth, or two or three inches above the soil, the common white mulberry on the plants of the *morus multicaulis*, two or three years old; these grafts of the common white mulberry grow to the height of four or six feet the same year." To enable us to decide on the verity of this statement, I can only say, that Mr. Michaux had no possible motive to misrepresent. His character stands too high even for suspicion; he is an eminent botanist and arborist, and his treatise on the trees of this country, attests to his ability in both departments.

I received a visit in November last from Mr. Lewis Finnelli, one of the exiles from Lombardy in Italy. He arrived in the United States during the last autumn, in company with seven other exiles, in an Austrian ship of war. Mr. Finnelli is a well educated and highly respectable gentleman, who had been thirty years engaged in the silk culture in Lombardy. He is intimately acquainted with the entire process, from the rearing of the mulberry to the preparation of the silk for the loom. He informed me, without knowing of Mr. Michaux's letter, that the leaves of the morus multicaulis were not considered as suitable food for the silk worm as the white Italian, and that the multicaulis was used in Lombardy as a mere recipient for the graft or bud of the white. I was struck with the coincidence of this intelligence, and communicated to him the contents of Mr. Michaux's letter.

I am not aware that we have any experience in the United States which would justify our discrediting the testimony of two gentlemen of such high respectability. Prudence at least would suggest to those who intend planting the mulberry, to be better assured of the qualities of the morus multicaulis, before they adopt it in preference to the white.

The silks of Turkey have long been celebrated for their softness, richness and brilliancy, notwithstanding the inferiority of their manupilation, to the silks of France and Italy. This can only be accounted for, by the superior excellence of the Turkish Mulberry.—Commodore Porter visited Broussa in 1832, and in one of his published letters, says:—"We visited the silk manufactories for which Broussa is so celebrated; they are spread all over the city, but there is nothing that can be called a silk factory. The weaving is all done by job work, of so much the *peake* of 3-4ths of a yard or thereabouts: *and these stuffs, so remarkable for their beauty*, are wove in miserable little rooms, only large enough to contain the loom and the weaver, or two weavers, as the case may be."

Fortunately there are already trees growing in this country, from the seeds of the Broussa mulberry. Mr. Charles Rhind, some years American Consul at Odessa, struck with the beauty and brilliancy of the Turkish silk, came to the conclusion, that it was attributable to the superior qualities of their mulberry leaves; and that he could not confer a greater benefit upon his country than in acquiring the seed of this species, and planting it here. From the local situation of Broussa, which is on elevated ground at the base of Mount Olympus, whose tops are covered with perpetual snow, and from the hardiness of the mulberry trees growing there, he concluded that it was adapted to our climate and would resist our severest winters. He obtained a quantity of the Broussa seed, and committed them to the care and cultivation of David Ruggles, Esq. of Newburgh, on the Hudson River, just above the Highlands. Under the superintendence of Mr. Ruggles, he has growing in his nursery, ten or twelve thousand trees, of about three years old. Through the kindness of these gentlemen, I planted out upwards of a hundred of these young trees, during the last spring. Mr. Ruggles asserts, (and from the appearance of the trees he sent me, I can confirm his statement,) they are very hardy, and not one of the several thousand growing in his nursery, has been affected or killed by the two last severe winters. Those I received were alive and unaffected at their tops and branches; they suffered little in transplanting, and but one died. When they made new wood during the summer, it became mature and ligneous, so that when the cold weather came on the last fall, every part of the tree was mature. My own observation convinces me, that this species of the mulberry is better adapted to our climate, than any other kind, and that it is hardier than the white. Mr. Rhind is of opinion that this species flourishes best in an elevated locality, and that it does not require a rich soil.

These trees will not be in the market until after a full trial of the qualities of their leaves in the nourishment of the silk worm; and if they answer the high expectations which Mr. Rhind cherishes, he will expect, and justly so in my opinion, to reap an ample reward for the expense he has been at and the trouble he has taken in introducing them into this country. It is my intention to feed a few worms exclusively on the leaves of the trees I have, during the ensuing season, and the result shall be made known.

Commodore Porter informs us, that the silk worm is reared in almost every house in Broussa, the inhabitants devoting to that purpose every room they can spare. "The town (he says,) is surrounded by plantations of mulberry for the use of the silk worm, and asses laden with the limbs of which, may be every instant seen going to the city. These trees are planted in rows, not more than two or three feet apart, and are cut so low, that a man can reach the topmost limbs, which are all cut off every year as the worms require them."

The Turks have set us an example worthy of imitation. If the farmers in the neighborhood of our cities and villages would plant out mulberry trees. and supply the markets with the foliage daily; what is to hinder a vast many families from rearing the worm? I venture the assertion, that if families in moderate circumstances in the city of Albany alone, could be thus supplied, silk to the amount of one million of dollars might be produced annually. In this calculation I include, as a domestic employment, the reeling of the silk from the cocoons also. This process has been considered one requiring long practical instruction. The art of reeling a thread of equal size throughout, upon the reels in use in Italy and France, may and probably does require very considerable experience; but American ingenuity has taught us better. Brooks' reel, lately exhibited in this city, is believed to be a great improvement on any foreign reel, and it was made evident that the art of reeling on that reel is of very easy acquisition, whilst the work is admirably performed. What superadded comforts the families of our cities and villages might enjoy, if we would learn to follow the example of the inhabitants of Broussa!! The farmers in the vicinity of our cities, would be amply compensated for all their expense and trouble in the sale of the leaves of the mulberry.

The Turkish method of planting their trees is excellent. The mulberry should be kept headed down—never suffered to grow higher than six feet, and the lateral branches pruned. In my opinion, their trees are set too close together; they should have sufficient air and sun, and five or six feet apart would give them both.

Mr. Finnelli observed to me, that there should never be more than one crop of worms raised in one season; that plucking the leaves more than once in the same season was injurious to the trees, as they required new foliage to repair the injury of the first plucking; and that in Lombardy this was an established principle.

If, in any part of this communication, I have said any thing which may affect the interest of those who are propagating the *morus multicaulis* for sale, I regret the necessity which has imposed it on me as a duty, to promulgate what I believe to be both material and true.

Yours, &c. A. SPENCER.

DUTTON CORN.

Northampton, January 18*th*, 1837.

JUDGE BUEL—DEAR SIR—The following is the method of culture, and result of the seed corn purchased of you last autumn, which, if you think proper, you are at liberty to give a place in the Cultivator. The variety is the twelve rowed early Dutton, or Buel corn, and is the best with which I am acquainted, particularly for latitudes north of 40°, on account of its early maturity, which is, I should say, two weeks earlier than the common or eight rowed kind. Out of several acres of the latter, planted the last season, I had not a bushel of sound corn, it being destroyed by the early frosts, while the Dutton was ripened and harvested on the 20th September, and did not give more than two per cent of soft corn. In the preparation of, the method of culture, &c. I pursued the course frequently recommended by you; but was, through the whole process, exceedingly annoyed in contending with old prejudices and practices of laborers and others, who often rebelled, and were disposed to place themselves conservators over me, in spite of all resistance on my part. If their prophecies were to prove true, my corn would have been seven times blasted. Grave doubts were expressed as to the advantage of the roller, and in the preparation of the seed, (*see Cultivator, vol. I. page* 37,) "whoever heard of rolling corn in *hot* tar? It will be scalded, ruined, and never come up." It *all* came up, however, and why? Because, being of the early variety, it was well ripened the preceding backward season, the reverse of which was much complained of in the common kind. Then, again, "it was too thick—depend upon it, sir, when you come to look for ears, you will find nothing but stalks; two feet and a half! four stalks in a hill! it is entirely too much—it will cover the ground and you will get nothing." As to smooth hoeing, or without hills, it was a thing they had "strong doubts about." The cultivator, however, was allowed to be "a grand thing," and clean weeding presented no objections; here of course was a long respite, and I was allowed quietly to enjoy the pleasant anticipation of a good crop. It so happened that my corn was not hid in a corner, but grew in an open field, was subject to the daily inspection of many a passer by, and I was much gratified by the frequent remark, "what a fine piece of corn!" But when the harvesting came, the objector says, "you have done wrong in cutting it up, it is better to top it," and again, "you are entirely too early, it will not harden." The fact is, however, it got thoroughly hard, and brighter or better corn I never saw; it was cut the 20th September, husked and weighed the 10th November. The piece of ground measured one acre and five and a half rods, and yielded eight thousand seven hundred and eleven and a half pounds, (which, at 75 lbs. the bushel, allowed by the agricultural society,) gave one hundred twelve and a half bushels to the acre; also, four heavy two horse loads of well cured corn stalks, worth more than a ton of the best hay.

PREPARATION OF THE GROUND, MANURE, &C.

I have a fine lot, containing six acres, lying east, and in full view from my house, slightly undulating and gently sloping, on which two or three years ago, I commenced farming in miniature, on the rotation system, that I might judge of the comparative profit of good systematic culture, (by some laughed at as book knowledge,) compared with a slovenly and parsimonious habit, too often persevered in, and I am so far much pleased with the result; it speaks loud in favor of good husbandry. I am well satisfied, too, that you must feed your land if you would be fed yourself. This lot has for many years, (fifty or more, for aught I know,) been undisturbed by the plough, from the erroneous opinion that good grass land should remain for the scythe only. The soil is mostly a warm sandy loam; some part of it, however, is low and wet; this I have overcome by thorough draining. (On this subject I may hereafter have something to say.)

I prepared by deep ploughing last fall, a part of the above lot, carted and spread upon it the 10th of May, 38 loads of long unfermented stable dung to the acre, making five heaps to the load, dropped at five yards distance each way; this, after being carefully spread, was passed over with a heavy roller, and afterwards well harrowed, planted the 15th of May, and ashed as it made its appearance above ground.

ESTIMATE OF EXPENSES, &C.

Dr.—To	ploughing with two yoke of cattle, 1½ days, at $3,..		$4 50
	Rolling and harrowing 1½ days, single team, at $2,..		3 00
	Seed corn,....................................		1 00
	Preparing seed corn with tar, &c.................		25
	Planting, two days, at $1,......................		2 00
	Three hoeings, two days each, at $1,............		6 00
	Horse and man 1½ days, with cultivator, at $1.50,.		2 25
	Cutting and binding two days, at $1,............		2 00
	Picking and husking 7 days, at $1,..............		7 00
	38 loads manure, at $1,..................	$38 00	
	Carting and spreading, at 25 cents,.......	9 50	
		$47 50	
	Deduct two-thirds for the succeeding crops in the rotation,........................	31 61	
			15 89
	20 bushels ashes, at 12½ cents,..................		2 50
	Spreading 1 day, at $1,.........................		1 00
	Interest on land, valued at $150,................		9 00
			$56 39
Cr.—By	62½ bushels corn, at $1.50,...............	$93 75	
	50 do. seed do. at $2,...................	100 00	
	2 do. soft do. at 50 cents,............	1 00	
	4 loads stalks,..........................	15 00	
		$209 75	
	Deduct expenses,...............	56 39	
	Profit,........	$153 36	

I have not had experience enough to know which is the most preferable, to plough old sward land in the fall, and spread the manure on the surface the following spring, or to spread the manure in the spring before ploughing, and then turn it in. I think much may depend on the season, in the first practice; if the season should be dry, may not a good deal be dissipated by the winds? and again, if it should be wet, may not the roots reap a greater advantage, than if it lay beneath the turf? I will thank you for your views on the subject.*

Although I used my own teams, and hire my labor by the month, at 12 to $14, yet in consequence of rainy weather, broken days, &c. I think it but right to charge the fair price of labor by the day, both for man and team. In estimates of this kind, the labor is frequently charged per day at the average of the price per month, which makes quite a different result. The estimate of corn, at $1.50, may appear to many overrated, nevertheless it is a fact, that corn of an inferior quality is selling with us at that price.

Yours very respectfully, H. G. BOWERS.

N. B. Since writing the above, it occurred to me that, although in the preparation of seed corn, tar is recommended chiefly, as a protection against birds, it may also have another very important effect, (thereby saving a replanting in consequence of wet weather,) in providing a coat, impervious to the superabundant water, until the sun shall, by its genial warmth, cause the germ to disengage itself from its confinement.

THE LOCUST.

Queens County, 23d January, 1837.

Judge Buel,—Since our farmers have found it an object of importance to extend the cultivation of locust trees, amongst other means resorted to, has been the use of seed purchased in New-York. Of late we are not a little disquieted by the assertion that the trees raised from this seed, are the *white* locust; and of very inferior value. In general aspect they strongly resemble the old growth of the Island, which is unquestionably yellow locust of the best quality; but upon minute inspection, a difference in the size of the twigs is quite obvious. Moreover, those who have cut down the suspected trees, say that the wood is *not yellow*. Can you enlighten us on the subject? I remember seeing in the Cultivator (some time back) remarks upon what was *called* "the thorn locust," but which was said, not to be locust; and I also remember inferring from those remarks, that you knew of only one kind—which was the yellow locust. We wish to bring the matter before the agricultural community, and therefore beg that you will notice it in your excellent paper. A SUBSCRIBER.

Remarks.—Our own observation leads us to believe, that there are at least varieties of the common locust among us, differing in the color and qualities of their wood, though we do not find a recognition of the fact in any work on botany, which we have consulted, except in Michaux's Sylva. At Boston and Long Island they speak of the *yellow* locust; while the wood of our locust is *white*. An intelligent friend living in Dutchess, told us some years ago, that his locusts were not affected by the borer, because they were of the *male* kind, not propagated by seeds, but by succors springing from the roots. Within three miles of this city is a healthy grove of locusts, while around the trees are destroyed by the borer. We have never compared the foliage or wood to ascertain if there exists a difference between the diseased and healthy. Michaux speaks of red, green and white locusts, which he says probably arises from a difference of soil. He says those trees are reputed best whose heart is red; the next in esteem are those of a greenish yellow heart; and the least valuable are those with a white heart. As this timber is likely to come more and more in demand, and the tree is easily propagated, even by succors, it is hoped some naturalist will investigate the subject more thoroughly, and publish the result of his inquiries. At present, we confess we have not confidence in success by propagating from the common seed, in districts where the borer is found.—*Conductor.*

LONG MANURE, DISEASES OF SHEEP, &c.

Michigan, Jan. 9th, 1837.

J. Buel, Esq.—Dear Sir,—I have been a subscriber and constant reader of your valuable publication, the Cultivator, from its commencement, and am surprised that any farmer who has ever read a number should fail of becoming a subscriber. Who has ever perused it and not found something in each number of sufficient value to pay for the volume? I firmly believe that, on an average, every farmer who tills fifty acres of land, by adhering to the rules laid down in the Cultivator, will add to the profits of his farm yearly the sum of $100. Who cannot point to a number of farmers, within the circle of his acquaintance, who might add $50 each, to the products of their farms yearly, by a more economical method of saving and applying that main source of a *good* farmer's wealth, putrescent manure? Instead of applying it in an unfermented state to his corn, potato or turnip crop, it is frequently suffered to lie in large quantities till fall, not only unsightly and offensive, but losing much of its valuable properties, and finally applied to a wheat crop, to which is often injurious instead of beneficial. Let us estimate the probable difference in the two methods of cultivation on only ten acres for two years, the first to be a surperficial cultivation, and the second on the old plan of ploughing and hilling for the corn crop.

1st. Crop corn with twenty loads coarse manure, fifty bushels per acre, 8s.		$500
2d. Crop wheat, twenty-five bushels per acre, 12s.		375
Total value of crop,		$875
2d. Method. 1st. Crop corn, without manure, thirty-five bushels per acre,	$350	
2d. Crop wheat, with twenty loads manure per acre twenty-five bushels per acre,	375	
		725
Difference in favor of 1st method for two years,		$150

Let us carry this one step farther, and say the first crop is cut up by the roots, and stooked as soon as the corn is glazed, husked as soon as dry, and the fodder secured in the barn, while the other is topped, as has been generally customary.

By the second method four bushels is lost per acre,	$40
Together with one-half the value of the stalks, say	20
Total,	$60
From which deduct the difference in harvesting, say $10 leaves	50

Which added to the first gain, makes a total of $200, or $100 per year; and yet this great difference is generally for a want of *knowledge*. Many pursue a still worse system than this, suffering large quantities of valuable manure to accumulate for years, thinking their land is rich enough without it. Time nor the limits of this communication will not permit me to enumerate the numerous subjects which are ably discussed in an agricultural publication, and which are of vital importance to every tiller of the soil,—suffice it to say, there is no topic relating to a farmer's business and interest, on which some useful hint is not thrown out. We are too prone to follow the footsteps of our fathers—never deviating from the old and beaten track. To be bred a farmer is often a great misfortune. It is a great satisfaction to see the progress that is made by those to whom agricultural pursuits is a new occupation; and yet their progress is mainly attributable to information derived from study. *Their children will be taught the value of agricultural publications.* Let every present subscriber endeavor to induce at least one of his friends to become a subscriber also, and bear in mind that he is doing a public good, and that every new subscriber adds to the intrinsic value of the paper, as the profits of the establishment are to be expended in rendering the publication more useful. I would suggest the propriety of offering small premiums to the best writers on different subjects; the premium to be a certain number of copies of the Cultivator, say ten; the merits of the writers to be decided by the conductor. These copies would be distributed, and by pursuing this course, the circulation might be greatly increased. Thus we should get the most useful essays, (the prize essay being published,) while those of less value would be excluded. If more should be sent than the intended premium, and a second subject not named by one of the contributors, let a subject be named by the conductor.

To set the example, I subscribe one copy of the fourth volume of the Cultivator for the best essay on the management of the dairy, embracing the making of butter and cheese, feeding of cows, rearing of calves and feeding of whey, milk and buttermilk, to be explained in a manner suited to the understanding of those unacquainted with the business, and to be sent in season for publication in the May number.* Will nine more subscribe each one volume?

I notice much written on the complaint in sheep, the worm in the head. I never tried a remedy but once, which happened to be the last case in the flock, (although we lost several previous to that,) and in that case a complete cure was effected. Not having occasion to try it again, I will not vouch for its efficacy. The remedy was Venice turpentine. The sheep was placed on its back, and about a table spoonful turned into each nostril, and in less than an hour it was up and had joined the flock, apparently as well as ever.

---

* *Old* sward, for corn land, is best ploughed in the fall, and if long manure is at command, it may be buried in the operation. It will undergo but a slight if any fermentation before ploughing, and the soil will imbibe what it gives off of nutriment. A clover lay is best ploughed early in May, having the manure previously spread. If, in the first, manure is not at command, we would recommend that the plough be set deep, and that the manure be buried in the spring, immediately preceding planting, by a superficial furrow, which shall leave the sod as much as possible undisturbed.—*Conductor.*

* We are authorized to award this premium.

The receipt for the scab (Cultivator, page 110) I have tried with perfect success.

Can you give any information respecting the feeding of hemp seed oil cake to swine, and would the seed of hemp or flax be valuable to boil and mix in small portions with swill for feeding store hogs?

Respectfully yours, NELSON CHITTENDEN.*

RUTA BAGA.

J. Buel, Esq.—Sir—Something like 20 years ago I commenced growing the ruta baga turnip, in consequence of its being so highly recommended by Mr. Cobbett. I found it to be one of the best of roots, grown with the least expense, according to its production. I sowed my seed by broadcast, after making my ground mellow and fine, about the middle of June; and from 80 rods of ground I gathered about 500 bushels of an excellent quality. But as this method of sowing rendered it somewhat tedious to dress out the plants properly, I have fixed on a different, and I think better plan. I find by the perusal of your excellent paper, that every man's way is the best, and by gathering a little from each of your correspondents, one might suppose it enough to make an agriculturist of any man of common sense, that will improve it. I however think it best never to recommend to the public any plan or practice, unless good reasons can be assigned for its utility, and the recommender can show, from actual experiment, that his plan is as good as the best. After years of experiments in the culture of the ruta baga, in which time I have tried many experiments, I settled on the following particulars in growing this excellent root: 1st. The land properly adapted to the nature of the plant is a strong loam. 2d. The land should be well ploughed early enough in the spring to have the sward rot by the 10th June. 3d. The land should be made perfectly mellow and smooth, and a good coat of manure, that is fine, say sheep or barn manure, should be put on. 4th. Throw the land into ridges 24 inches apart, with a small horse plough. 5th. After the ridges are rolled down a little by some light roll, say a straight cask with a shaft through the middle, and a horse attached to it—put in the seed on or about the 15th of June; the seed should be put in 10 inches apart the way the ridges go. 6th. After the plants are large enough to dress, be careful to have one plant in every hill, and only one. 7th. Dress them three times properly, and plaster them three times, say when they are breaking the ground, and after each of the two first hoeings.

I have found the above rules, closely followed, have never failed to produce a good crop; the last year I raised from 90 rods of ground 605 bushels of sound close grained ruta baga turnips. It was on land a distance from the house or barn, and never had to my knowledge a spoonful of manure on it until a few days before I put the seed in the ground.

Should you think the above worthy a place in your paper, it is at your service. Yours, respectfully,

J. M. LAWTON.

Great Barrington, January 22d, 1837.

Letter from Judge Mason, of Sing-Sing, to the Conductor.

FATTENING SWINE.

We have lately seen an abundance of experiments and instructions for rearing and fattening swine; and it is fortunate for the farmer, that the almost despised apple, (after cider was entered on the list of proscription) is now being elevated to its proper rank and standing. The apple is found to contain nutriment enough, not for keeping alive only, but for actually fattening and hardening our porkers, and that too, without the aid of corn. But like all other great discoveries, it will take some time and experience to reduce its importance to that simplicity and usefulness that will bring the expenses to a level with its value.

The last directions I have seen, include boiling or steaming with a mixture of flour or meal, or some such expensive article. This may all do in our western or newly settled countries, where firewood and timber must be burned to get them out of the way; but when wood attains the value of six or seven dollars the cord, and coals eight or ten dollars the ton, it would be sheer nonsense to talk about steaming or boiling.

I too have tried some experiments in this way, and I find that apples for feeding, to give them their highest value, must be pounded, or ground fine in a common cider mill, and then stand in tubs, or vats, for the saccharine matter to evolve, which natural process will be effected in about twenty-four hours in warm weather, and from that to forty hours as the fall weather grows colder, until freezing; and I will hazard the opinion, that one bushel of apples thus macerated, and passing through the incipient process of fermentation, will have acquired more nutriment and richness, than two bushels could impart if fed whole, or immediately after grinding.

Thus matured, the apples are ready far the swill-barrel, and with the addition of the wash and the wastage of the kitchen, or even clean water, till sufficiently diluted, will make a feed that hogs do become so fond of, as to leave ears of corn that may occasionally be given them, to fly to the trough for their favorite beverage. I have no doubt but the mass may be still bettered with the addition of bran, or shorts, or any sweepings or siftings of mills or granaries, the farmer may have on hand.

It is certainly very probable, that a combination of the carbonic, or alkalescent gasses of the atmosphere, with the juices of the apple, gave rise to the opinion among some old farmers, that the cider made in their circular troughs, with a large wheel, was always softer and sweeter than that of the nut mill, which many would not use; without any chemical knowledge, or even thinking at that time, that the slower process of the large wheel made the difference they tasted in the liquor.

Thus then we find, that a good orchard, with large pounders, or some cheap apparatus for grinding, would enable a farmer to winter a large number of hogs, and cattle, and poultry for breeding, or the spring market, when the high prices of grain will induce him to reduce his winter stock to the least possible number. If I was a farmer on a smart scale, I would go to the expense of putting up a cheap building to accommodate some grinding machine, with a close cellar under the whole to receive the necessary apples for winter feeding, made tight with good floor to preserve them from freezing through the cold weather.

HAY-MAKING.

New-Berlin, N. Y. Jan. 31, 1837.

Jesse Buel, Esq.—Dear Sir—My noviciate in farming commenced in 1835; and no operation of that year gave me so much anxiety as hay harvest: being ignorant of that, as of other operations of the farm, I committed the management of it to one who had the recommendation of experience, but whose greatest merit proved to be a most dutiful adherence to the practice of his progenitors.

A luxuriant growth of red clover was cut, spread out in the usual way, exposed alike to the influence of the sun and dews, and, as it often happens, before it can be cured, is saturated and bleached by showers; thus it happened in my case, and at last was housed before the stalks were thoroughly dried; the certain consequence of overheating in the mow ensued, and the hay came out materially injured. My better success the past season, I attribute entirely to the casual reading and practising on an article, Vol. I. No. 11, Cultivator, which I beg leave to remark in passing, I consider worth triple my whole subscription to the Cultivator. My practice was to cut no more each day than could be raked and put up into cocks of about 100 lbs. green grass; if mowed before the dew was off, the swaths were turned without breaking; if when the grass was externally dry, the horse rake followed hard upon the mowers. If showers intervened before getting it into the barn, all that was found requisite was to raise and loosen up the cock by inserting a fork at the crown; when sufficiently cured, the hay will retain a bluish green color. Before hay harvest was finished, it became obvious to me that this mode must yield a greater amount of hay by weight; accordingly I weighed out two parcels, each 80 lbs. green clover—one was cured by putting immediately into cock—the other spread in the usual way—when cured, were firmly bound up and placed in the mow. The result, by weighing recently, shows that the former is by ten per cent heavier, and the quality, judging from color and fragrance, manifestly superior.

The loss in weight is easily accounted for in the loss of leaves, blossoms, and the decomposition and dissipation of the volatile oil, which gives to hay its fragrance, and these I doubt not constitute the best properties of good hay.

The economy of this method ought to engage the attention of farmers, and more so because it is at a season when labor is in the greatest demand, and dearest. The expense of making hay by this method, may be safely set down at $1.25 per ton, presupposing the use of the horse rake and good labor at $1 per day. What is worthy of remark, the expense is not materially raised by adverse weather, which would render almost abortive any attempts in the old method. If farmers will try it, they will find that the old adage—"make hay while the sun shines"—will have lost half of its importance, and that the process of making hay will be going on in cloudy weather. They will also find that the operation is governed by such laws as cannot fail to give them good hay. The slight fermentation which is induced by the moisture or juice in the grass, subsides just so soon as heat enough is produced to evaporate it, and then the process is ended.

---

* We hope to be pardoned for transferring the name from the postscript to the communication.

Permit me to suggest to novices in farming a simple method I have adopted, in keeping a daily register of all operations done on the farm, which will enable them to make statements without any admixture of conjecture and estimate, and to determine the profit or loss of any crop.

A book cross-ruled—left hand margin, day of the month—allow then two perpendicular columns to each man, in which, opposite to the day of the month, in one column set down the amount of labor done, in the other, the time at each kind of work; this is done in a very short note. This answers the other valuable ends of keeping accurately the time of hired labor, gives a connected history of the work of the farm, and is convenient on divers occasions, as a book of reference. Two minutes a day, is all the sacrifice of time—a trial of one year will be found the best commentator on its merits.

I have written the foregoing in much haste; if you consider any of the suggestions worthy, they are at the service of the readers of the Cultivator. Yours truly,

TRACY S. KNAPP.

Skaneateles, 2d month 4th, 1837.

Esteemed friend,—One of the good effects produced by the call of the State Agricultural Convention last winter, may be named the establishment of an agricultural and horticultural society in this place, and, in the character of its corresponding secretary, I submit the following summary of some of its proceedings. The meetings of the society are held monthly, and although some of them have been discouragingly small, yet in no instance have we returned from them without feelings of interest, and in most cases arising from an increase of knowledge on subjects in which all the members of the society are deeply and personally interested; in proof of this, I will mention the subjects which being proposed at one meeting, have at the subsequent meeting afforded matter either for essays or for discussion. On planting and preserving orchards, also the best mode of using apples, so as to realize the most profit in feeding of stock. The right time for cutting grass and making hay. On the best tillage for the growth of wheat. On the comparative advantage of different breeds of sheep; and at another meeting this subject was resumed, and the best mode of wintering sheep united with it. On root culture. On draining. Root culture resumed this day, when it was agreed to give prizes for crops of ruta baga, carrots and parsnips, grown the coming summer, to be not less than four competitors in each class; the first premium $3, the second best $2; and for sugar beet to be three competitors, first prize $3, second $2; and should there not be the requisite competition, the society may award a prize for an extraordinary good crop of either root. It was cheering to see the facility with which the society raised the $20 thus appropriated, and more could easily be obtained if needed.

I do not know that I have more to communicate than expressions of thankfulness for thy services to the good cause, and a hope that the Convention, as well as the State Agricultural Society, may be enabled by its recommendation of sound measures, and good principles, to promote the public weal.

It would have been very pleasant to have witnessed the deliberations of both bodies, but circumstances, over which I have no control, deprived me of the gratification. Thy friend,

JAMES CANNINGS FULLER.

ON TRAINING THE GRAPE.

Schenectady, December, 1836.

Dear Sir,—We are frequently told that grape vines must be kept from climbing high; that the fruit will be richer and better, than when the vines are high, and far from the ground and their roots.

When Bishop Brownell left his professorship in Union College, he sent to me a small grape vine with root. I set it near the paved walk from the street to my yard and garden, a south aspect. I erected a trellice frame over the walk and cistern, 10 feet high, and the part next the house on a slant to 15 feet high, and about 14 feet wide on the ground. The vine soon covered the frame, and bore grapes resembling the kind called Isabella grapes, but higher flavored. It has been exposed to all the late hard winters, and suffered some in the small branches, and yet it has uniformly borne well. I have always noted that the bunches of grapes on the highest part of the frame, from 10 to 15 feet from the ground, were much the richest in flavor; when those from 5 to 10 feet from the root, perpendicular, and most exposed to the sun and air, were very much inferior, and not well ripened. On seeing the Bishop some years since, he told me the grape was the Frontignac.

If you judge the above may be useful enough to find a place in your Cultivator, you may give it a place.

Most respectfully, DAVID TOMLINSON.

BEET SUGAR.

ROYAL AND CENTRAL SOCIETY OF AGRICULTURE.

Report in the name of a special commission composed of M. M. Le Baron de Sylvester, the Duc Decazes, Count de Chabrel, Darblay, Crespel Delise, and Payen, reporter, with practical instructions, and prize questions on the extraction of sugar from beets, adapted to rural establishments, and the means of improving and forwarding this branch of industry, made in 1836.

[Translated from the French, by D. Spoor.]

Gentlemen,—You have charged us with the examination of a question of the highest interest for the agriculture and industry of France. Permit us then to cast a rapid glance over the vast field that lies open before us.

Numerous incontestible and undisputed facts show the immense advantages that will result from the increase of the culture of beets, and the extraction of the sugar, which they contain in abundance.

It is only by the exchange of their crops into commercial products of greater value, or capable of home consumption, that the cultivators can relieve themselves from the state of distress to which the successive reduction of the price of grain, as well as the deplorable condition of most of our ways of communication, have reduced them.

In this sense, a useful impulse may be given, by forwarding the connection, so desirable between the agricultural and manufacturing industry. Already the happiest results have been realized in the erection of starch manufactories (feculeries) several oil mills (huileries) and other manufactories, in the midst of districts adapted to furnish them with the raw materials.

All these sources of industry together would not extend so rapidly the benefits of productive labor, and none of them assist so much in the progressive melioration of the soil, as the manufacture of indigenous sugar. In fact, the commercial product which is obtained from it, does not produce any sensible diminution of organic azotic matter, which is very justly considered by agriculturists of the present day, as the most valuable and precious agent of the fertility of the soil.—The beet has also this advantage over most other cultivated plants, that it may, if required, be sown on the same ground for ten and even fifteen years in succession, without diminution, and even with increase of the crop, as has been proved by numerous experiments made by Mr. Coste, at Sailly, Delisse, at Bithune, Crespel Pinta, at Arras, Crespel Delisse, at Brevellers, Lesneur, at Abbeville. Their rapid growth, completed in four or five months, draws forth from the bottom of the vegetable mould the soluble manures, to be in the end applied to the surface, either in the form of the decayed leaves or tops, the scum and dregs applied as a manure, or in the dung of the animals fed with the pulp after the extraction of the sugar. The plants require attention that will give useful occupation to individuals of both sexes; loosen the soil, destroy noxious weeds, furnish abundant herbaceous nourishment for cattle, disturb and destroy the different little destructive animals, which often multiply during the continued culture for several years on the same soil of such crops as do not require hoeing. It is thus, that the culture of the beet realizes the wish, so generally expressed by agriculturists, the introduction of a plant that requires weeding; the essential basis of a real improvement of the soil. The last stripping of the leaves (effeuilage) the digging, or pulling, (arrachage) and the storing comes opportunely at a season when almost all the other crops are housed.

The residue of the beets, after the extraction of the sugar, consists, 1st. Of the pulp, almost as rich, and more easily converted into nourishment by cattle, than the beet itself.* It is very useful for fattening cattle, and more so for sheep, and when fed to cows it increases the quantity of milk; and we may even obtain from it, by drying or preserving it in cisterns, one of the best substances as a provender for domestic animals. 2d. The albuminous, and slightly alkaline scum, which forms an excellent manure for lands. 3d. The molasses, the use of which is not limited to furnishing the raw material to the distilleries, the manufactories of tobacco, and of white lead, but furnishes at the same time a wholesome aliment for cattle, and a condiment, or seasoning, which is the more useful, as the salts drawn from the soil, where they are injurious, seem to give a healthy excitement to the digestive powers of animals.

The production of domestic sugar is then one of the most fruitful sources of prosperity for France. Already we owe to it the gradual reduction of the price of this commodity; when the price of that from the English colonies has just risen in consequence probably of their legislation, and the change in the condition of the slaves.

Our annual consumption, actually amounting to 100 millions of kilogrammes,† is not equivalent to the half of that of an equal number of individuals in England, Germany, Switzerland, or Italy.—This consumption is in a good degree interdicted to the poorer classes, only by the high price of the sugar; active competition, and better management of the beets, are of themselves sufficient gradually to increase this consumption in connection with the general welfare. Besides, the manufacture of domestic sugar will not exist isolated; it will protect divers other branches of industry; the preparation of lime; the manufacture of animal charcoal; works of metallurgy; the construction of steam engines; the manufacture of cloth, of casks, and as many other mechanic arts;—we have said nothing of the results, now less perceived, but not less real, and still more important, which will evidently follow from the extension of a work that calls for intelligence among the uninformed, and too often idle population of the country. Such as the physical and intellectual improvements, the communication of elementary knowledge, the reading of publications on agriculture and manufactures, and the general comfort. In order that the manufacture of sugar from beets may realize all the good we have a right to expect from it, it is necessary that it becomes general without delay, not only in those great centres of production, which are to supply commerce and the refineries, but also that it be introduced among the small cultivators, and thus causing the consumption to extend even to the cottage of the poor. It is with this design that the Royal and Central Society of Agriculture makes an appeal to the enlightened patriotism of persons familiar with the operations of our manufactories of domestic sugar.

We can already cite several examples of small manufactories undertaken by farmers. For instance a land holder in Limagne and Auvergne, has succeeded in extracting from 50 to 75 kilogrammes, 110 to 165 lbs. of raw sugar per day, with very simple utensils, at the same time that he increased the feed for his cows, and the manure for his lands. There are in the department of the north, several small manufactories conducted by the workmen on the farm, and several associations of farmers have obtained advantageous results in the neighborhood of Valenciennes, Toulouse, Limoges, and Nismes. Besides, it is well known that farmers have found great advantages in associating to carry on their manufacture of cheese, wine, cider, &c.

An example worthy of imitation has been given long since by two members of your commission. It consists in an exchange of the beet crop for raw sugar, between the agriculturist and the manufacturer.‡

In order to instruct those who wish to engage in this branch of industry, and who have not practised the manipulations, we will give a short description of the most simple processes, insisting on those points which competitors must endeavor further to simplify, and bring to perfection.

We remark in the first place, that all light, arable lands, not too stony, generally free from excess of humidity, or the other extreme of excessive drought, are suitable to the culture of the beet, provided also, they are free from saline impregnations, as is the case in some countries, especially in certain marshes that have been drained, or filled up with earth, or manured with materials containing salt petre, or beach sand; moreover an attempt at cultivating even these soils, may often be proper in order to obtain one of the best roots, to be used as food for cattle, and for extracting the saline matter from the soil, especially as in these soils, the crops are generally very abundant.

Finally, the society would rejoice to see some one engaged in ascertaining, more precisely than has been done, the influence of certain proportions of soluble salts on the quantity of sugar contained in beets, and especially on that which may be extracted from them under similar circumstances.

Variety or choice of beets.—The white (called the) Silesian beet, appears generally to deserve the preference; but some varieties with long tapering roots, such as the yellow beet of Castelnaudery, would perhaps be better adapted to loose and deep soils. It would be especially desirable to ascertain the products of these varieties, compared with that of others, particularly in our southern departments, where manufactories of indigenous sugar are beginning to multiply.

The pulling of the roots.—It is important to perform this operation with care, and so as to avoid as much as possible bruising the roots; we should also seize a favorable opportunity, lest the rains, and finally the frosts, should make it almost impracticable, at least in certain localities, where the earth soon becomes saturated with water, and very tenacious. Several economical modes of uprooting (arrachage) have been proposed. A decision in favor of the most preferable mode, regarding the nature of the soil, would be a useful result, the communication of which would interest the Royal Society of Agriculture.

Storing or housing the roots.—It is also important to commence in good season, the working of the beets; for instance, as soon as they have attained to maturity, or even a few days before, and as fast as they are taken out of the ground, in order to avoid that spontaneous change, which greatly diminishes the proportion of sugar to be extracted from them. It is always necessary to store a great portion of the crop, in a convenient place near the manufactory. Trenches or ditches in the earth, of from three to five feet in width, and the same depth, answer very well; these are filled with beets having their leaves and tops cut off. They are covered with a coat of compact earth, of from twelve to eighteen inches thick, and at equal distances of six feet is implanted a small fascine or bundle of brush, of about six inches in diameter, to make a vent for the heat, which is ordinarily extricated from the buried roots, and which would cause all the roots to spoil. Several kinds of trenches, of different depths, but of sufficient extent, have been tried; lately the flues of the trenches have been improved, by extending them even to the bottom, where they communicate with a gutter, running the whole length of the trench, under the beets. It is desirable that trials should be made that would show the comparative merits of these different methods.

Extraction of the juice.—Until the present day the most convenient means consists in the employment of a rasp or grater with strong teeth; the cylinder of which ought to make from 600 to 900 revolutions in a minute; its plates ought to be easily taken off and replaced. If the grater is moved by machinery, the man who holds the beets, may have his place supplied by a mechanical contrivance, (pousseur) provided that the roots have not been grown on a stony soil.

Several mechaniciens furnish these utensils of a proper construction, and no doubt they may be still further improved and simplified. The presses with iron, as well as wooden screws, are of simple and cheap construction, and seem to be well adapted to their use. Competitors should always examine whether other arrangements would not be more economical or more effectual.

In the manufactory already alluded to, a jack similar to those used by wagoners and stone-cutters, was suspended from a beam and served for pressing the scum, which was put on a tray placed on the edge of the clarifying boiler. A similar contrivance might be used for pressing the pulp, at least as an experiment, to avoid unnecessary expense in the small manufactories which are now in progress of erection.

Competitors might try a process, which seems at first sight much more economical, that is maceration. But hitherto the success of maceration remains doubtful, in consequence of too much complexity in the apparatus for its performance, the increase of the quantity of fuel necessary for evaporating from 25 to 33 per cent more water, and the difficulty of using or transporting the dregs or residue, the weight of which exceeds that of the roots employed. It is of high importance that all uncertainty on this point should be settled.

---

* In many places the graziers find a profit in buying the pressed pulp at a price superior to that of an equal weight of the entire beets.

† The kilogramme is equivalent to 2 1-5 lbs. avoirdupois.—*Tr.*

‡ In 1813 Mr. Darblay exchanged his beets for raw sugar, which was extracted from them in a manufactory situated at Vaugirard near Paris, under the direction of Mr. Payen. The sugar was directly applied to ordinary consumption.

Lime to be prepared for clarifying the juice.—It is very important to procure strong lime of good quality, and to slake it when about to use it with hot water, and finally, to add gradually a sufficient quantity of water, so that the lime may undergo the greatest possible division. The stones which do not slake should be replaced by an equal weight of quick lime, which should be slaked with the same precautions.

Instead of weighing, the lime may be measured, either by using the paste of lime, previously slaked, of a certain consistence, and kept under water, or the milk of lime, the thickness of which, or its degree of strength, may be estimated by the areometer,[*] or by any other floating body, taking care to immerse and observe it the very moment when the liquid has just been well agitated. It is well always to rinse, with milk of lime, all the utensils after washing them, in order to prevent the formation of an acid.

Defecation—or purifying the juice.—It is at the moment when the juice attains a degree of heat that is insupportable to the finger, (from 70 to 80 degrees,)[†] that the milk of lime is poured in, the whole stirred briskly, and then the scum suffered to rise. (It has been proposed to saturate the juice of the beets without heat, immediately after its extraction. This mode of proceeding appears plausible; but experiments properly conducted, and their results compared, are necessary to settle opinions on this subject.) As soon as boiling commences, the fire is put out, or the stop cock in the steam pipe closed, if the heat is communicated by steam. It is left at rest for six or eight minutes, and then drawn off clear.

The scum, gradually pressed, yields a part of its juice; it is then usefully employed as a manure, after having been dried by mixing it with lime in a state of powder. The clear or defecated juice should immediately run through a filter of coarse animal charcoal, which has already once served to clarify the concentrated syrup of a preceding operation. Thus the defecated juice washes the animal charcoal, and at the same time purifies itself.

Several new methods of rendering the defecation more complete, and producing less change in the sugar, are at this time proposed, the effects and usefulness of which competitors would do well to observe. As fast as the juice passes through the filter, it is evaporated to 25°;[‡] then, after having left it to settle in some receiver, it is poured on a second filter of coarse animal charcoal, when the purification is finished. It is above all important to perform this operation with all the expedition which can be obtained from the shallowness of the boiler and the facility of transferring the liquor from one vessel into another.

During the first moments of the evaporation, it is well to add the portion of fine charcoal separated in the revivication.[§] This fine charcoal is in part brought to the surface with the scum, which is taken off to be added, after the lime, to a subsequent defecation; this scum is then added to the first, and is treated simultaneously with it. The syrupy deposites in the receiver are also added to a subsequent defecation.

The syrup obtained, filtered at 25°, may be left some hours with as little inconvenience as the weaker syrups, in order to obtain some rest; it ought then to be boiled briskly in a caldron in full ebullition at every point. If too much froth seems to rise, which happens especially when the dose of lime employed has been too weak, a small lump of butter should be thrown in, which will allay it; when an excess of lime has been used, the ebullition towards the close of the boiling is very slight, especially if the coarse charcoal was not sufficiently absorbent, or employed in sufficient quantities. It is to be observed in this case, that the liquid, once in the state of syrup, boils so little and loses so little vapor, that it is said then the syrup (clairee) is *immoveable.*

The committee have thought that the process of blowing in hot air, (insufflation) reduced to its most simple form, would render the operation of boiling more easy to farmers than any other mode, and the danger of *immoveable syrups* thereby completely avoided. To this end, a fine bellows furnished with a good valve to guard against the return of the heated air, might suffice for forcing in the air, which after having passed through a heated cast iron tube, would issue near the bottom of the pan, by several holes in a tube that traverses the syrup.[*] But this process forming a base of a patent it might perhaps be necessary that competitors should have an understanding with the patentee, *Mr. Brame Chevallier*, unless this manufacturer should himself become a competitor.

As soon as the liquid is so reduced that a drop pressed between the thumb and forefinger forms, when the latter is suddenly separated, a thread which breaks and bends, the evaporation is completed. There are other means for taking the proof, and it would be well to determine which is the most certain for persons unaccustomed to conducting these operations. If one boiling was continued too long, the next quantity might be evaporated less, so as to compensate for the excess.

The boiled syrup is poured into a *cooler*, made of copper or wood, of dimensions sufficient to contain the whole of four or five boilings, the whole is gently stirred from time to time to hasten the cooling, and the formation of some crystals; the whole is then poured into conical moulds of earthenware. Wooden vessels, or even tin christallizers, which might be made and easily repaired in almost every village, would probably be preferable to *earthen* moulds; competitors will try to discover whether there is not some other vessel more convenient and economical. At the end of two or three days, when the crystallization is completed, it is left to drain in a place, the temperature of which should be kept constantly at from 18 to 20°.[†] The opening in the bottom of the mould should be uncorked, and the mould placed erect over a pot, or on a kind of bottle decimer;[‡] and in this last case, the moulds are placed over a gutter of cast copper, tinned, or one cut out of free stone, leading to a small reservoir below, sunk into the earth. If tin crystallizers are used, these are placed vertically, in pairs, with their brims applied to each other, over a gutter of lead or tin. If the draining has been performed in a damp situation, there takes place a kind of natural separation, which is sufficient to make the sugar fit for ordinary consumption. This was the case in a manufactory belonging to one of this committee; the raw sugar kept for three months had lost its original disagreeable smell, and was directly consumed.

The molasses reboiled yields a second crystallization, but more slowly. This takes place as well in the crystallizers, and the draining may be performed through a cloth placed in the bottom of the moulds. Finally, a third crystallization may be obtained by putting the crystallizers into a hot-house, or as is the usual practice, in reservoirs, where the second molasses daily accumulating, is left for a whole year. (*To be continued.*)

FOREST AND TIMBER TREES—OSAGE ORANGE—SILK—COTTON AND SUGAR BEET AGRICULTURE.

Nonantum Hill, Newton, Mass. Feb. 8, 1837.

J. Buel, Esq.—Dear Sir—I am induced to send you a few remarks on timber trees, to which I shall add some observations on other subjects. I was induced to this at first, by an observation in one of the late numbers of your highly valuable Cultivator, where, in speaking of the Osage Orange, (*Maclura aurantiaca,*) you say, "*The Osage Orange is tender, even more tender than the Morus Multicaulis, as it had been killed down to the ground with you every winter.*" These are the words as near as I can recollect, in substance. I had stated in some of the periodicals last spring, which I have seen copied into other journals at Hartford and Albany, *That the Osage Orange was a hardy tree, as it had sustained the rigors of the last severe winters near Boston.* I have two trees standing on the hill where I reside, one seven and the other eight inches in circumference, the one ten feet high and the other eleven feet; here they have stood since the spring of 1829, and without any protection, and are yet uninjured by our most severe winters; one in a northernly and bleak exposition, the other northwesterly. The soil loamy and springy, resting on solid hard pan of gravelly clay. The tree being yet rare here, I know none so large in this state except at the Botanic Garden in Cambridge, where

---

[*] An instrument to ascertain the weight of liquids.—Tr.

[†] Reamur Scale—70° to 80° of which are equal to 190 to 212 Fahrenheit.—Tr.

[‡] Whether this is the Hydrometer or Saccharometer is not stated.—Tr.

[§] An operation that will be described in another place.—Tr.

[*] The sufflation, or the blowing in hot air, would also greatly hasten the first evaporation, and might be practicable in the country, where hand labor is often very cheap.

[†] 72½ to 81½° Fahrenheit.—Tr.

[‡] A board pierced with holes, into which the neck of the inverted bottles are put to drain them.—Tr.

I think I have seen *large trees* of the maclura.* I have generally bought these trees, but never recollect to have lost one single tree by winter. Yet when I had read your account, and towards the last of December and some time after winter had set in, recollecting I had a nursery of a few thousand of these trees on some low sloping land, which I bought last spring, and then only a year old, I caused horse manure to be spread over the roots, leaving the tops quite exposed as before.

We know from experience, that even in our climate, the pear, the cherry, the plum, and the quince, while young and of but a single summer's growth, *are tender trees,* and require protection during the first winter on a naked and defenceless soil. We know that these trees during the first winter are liable to be thrown out by frost and destroyed, unless we afford them protection; but in the second winter, if they grow well, we have rarely witnessed any injury from the cold of winter. I am inclined to believe that the climate of the valley of your great river, is exposed to a degree of extreme cold during winters, which is unknown in the same latitudes on high hills a little remote, or on the lands near the sea. The same remarks may apply to the valley of the Connecticut, from the position of the river throughout its whole extent, from Canada to the sea.

The Osage Orange is a beautiful tree, its leaves bear striking resemblance to those of the orange tree, and the wood, like that of the orange, is armed with long sharp spines. At Philadelphia, it is asserted, that it makes the finest, the strongest, and most beautiful hedge in the world; being set out in a single row at the distance of twelve or fifteen inches asunder. As to the timber, my authorities are the Hon. Mr. Sevier, member of congress from Arkansas, and Mr. Flint, who wrote the account of the western states, who assert that the wood is remarkably tough, strong and elastic, and is preferred by the Indians to all other wood for bows, and hence the name of *bow wood.* The timber admits a fine polish, and is useful as such for the cabinet maker. For timber, they assert, that it is one of the strongest and most durable in the world, and is preferred in the construction of steam-boats even to live oak.

Observing the remarkably hard texture of the three thorned acacia, I had suggested that this wood promised to become a most valuable timber tree, like some others of the same tribe; but this suggestion was contradicted in some of our eastern journals, where, it was asserted, that the timber was *worthless.* But Mr. Flint has assured us in his work on the western countries, that the three thorned acacia is one of the strongest and best of all the varieties of timber, and is much used in the construction of steam-boats on the western waters.†

It is truly said by artificers in wood, that for many purposes, a pound of wood is stronger than a pound of iron. In regard to *strength,* the oak, the shagbark, and the ash, are among the most valuable known with us in our climate, and are applied to an infinite variety of uses. The ash, though less durable than the oak, is light, strong, elastic, and works very smooth, and is therefore very superior to oak for a variety of uses; for the shafts and springs of riding carriages particularly. There may be, however, some kinds of wood even superior to the ash for all these purposes. I have observed, for this last purpose, that the *lance wood* is lately sometimes used, a tree which grows in the West Indies, and is far superior, stronger, more fine and elastic, inasmuch as the shafts and springs of chaises formed from this material, require but half the volume or thickness as ash. Iron and steel could not, for these purposes, supply its place. I know that the wood of tropical countries is more solid and compact generally than ours, but I hope some new kinds may be found in our own extensive country, even far superior to any well known variety of our own native timber, and adapted to our climate.

I have sanguine hopes that the sugar beet culture will succeed and flourish with us, as it now does in France. Silk and the sugar beet, I learn from the best authority in France, are the all engrossing objects of culture at this time and in that country. There, even the cake of the beet, which remains after pressure, is stated to be worth more for cattle than the roots in their original state,‡ being more condensed and less watery. It is evident that great and most decisive improvements have been made in France, which have turned the scale entirely, since count Chaptal and Iznard were concerned in its manufacture. For there, even in that country, its manufacture could not be sustained, with all the encouragement which a protective system and high prices could afford; but then, according to Mr. Iznard, only two pounds of sugar was produced from 100 pounds of beet root; but now six or seven, or eight pounds, is produced; and in Silesia, it is stated, ten pounds are produced from 100 pounds of roots, which quite alters the case. Sugar, as a food, is one of the most nutritious, wholesome and economical of all the necessaries of life, inasmuch as the whole tribe of fruits, even the refuse of our orchards, however acid and austere, may be converted at once into the most palatable and wholesome supplies of food for man, by the addition of sugar: also, the most insipid and tasteless articles which we consume as our food and our drink. Its antisceptic qualities are well known in the preservation of meats.

I have great expectations in regard to silk and its culture among us. Look but at the improvements already made in its manufacture. At Nantucket I have seen the looms which will weave, in a finished style, pongees at the rate of two and a half inches in a minute; and those who know the best there, are the most sanguine. We have now to carry these same improvements into every branch. It is vain to prescribe bounds and to tell where improvements are to stop. They must pervade every department, from the commencement of the culture, till the perfect fabric is completed; and every invention must be sought after to abridge labor, and to overcome its high price in our country. I am confident that success will crown our endeavors, beyond any reasonable doubt, as in all things else.

Let me here just state how, by the ingenuity of our citizens and their enterprise, we have overcome all obstacles in regard to cotton. Even, it is stated at this day, that the spindles of the throwing machines for silk in Piedmont, and where the invention first began, perform but three or four hundred revolutions in a minute, while in England they perform from 1,800 to 3,000 in the same time. But the spindles of our machines for cotton in America, which are on the same principle, are now made to revolve about 5,000 times in a minute.

Twenty years ago the Waltham manufacturing company put out all their cotton yarn to weave in private families, and the cost of weaving No. 14 yarn into cloth 37½ inches wide, was from eight to twelve cents a yards, which is equal to the average price which the same goods have sold for the last five years. Now, by improvement in the *power looms,* the same cloth is wove for 5-8 of a cent a yard; and a girl will tend two looms, but occasionally three, and each loom will weave of the same quality of cloth, from forty to forty-five yards in a day of twelve hours. The improvements in spinning are even as great at this day at these factories; a girl tends 256 spindles, which will spin 1,300,000 yards, of No. 14 yarn, in a day of twelve hours, [equal to about 700 miles,] which is equal to 1,548 hanks, or 110 pounds. To do this on hand machines twenty years ago, in twelve hours, would have required upwards of 500 girls. My authority for these statements is first rate, Dr. Hobbs, the agent of the above company.

Agriculture, commerce and manufactures must all flourish together. Our usury laws have conspired to crush our agriculture, and to build up manufactures and commerce at its expense. Our usury laws have put almost an entire stop to all loans, to any but the citizen on real estate in the *country,* for any agriculture improvement. This important fact I have fully ascertained from the most intelligent sources in the city. It has combined to discourage and drive far away our farmers. Their lands will not avail. Many capitalists would loan to the farmer on real estates at fair rates, were the law repealed. Now, the whole benefit of evading the law is enjoyed by our cities, who have the more ample room and space, inasmuch as the country is excluded.

Very respectfully your friend and humble servant,
WILLIAM KENRICK,

LINCOLNSHIRE SHEEP.

Carmel, Feb. 6th, 1837.

To Jesse Buel, Esq.—Believing that you take a deep interest in the introduction and dissemination of improved stock, &c. &c., I would remark in relation to my *Lincoln or Lincolnshire Sheep,* of which I gave you some account in my former communication. I feel very confident that this kind of sheep are much superior to any other sheep I have ever seen, and will prove a great acquisition to all the *mutton producing districts* of our country. They show a hardiness of constitution not inferior to the South Downs, or any of our best native sheep; but in addition, more beauty of form, heavier carcass and fleece, and better quality, than the other larger breeds, common among us. As an evidence of their superior constitution, you will believe me when I state that these sheep were shipped from Hull, in England, about the first of September last; they arrived at the port of New-York about the last of October, having (as Mr. Gossip informed me) made the passage in 58 days. I saw them in two or three days after taken from aboard ship; they were in fine condition, showing no particular marks of falling off from the change they had undergone, as well as their long passage. After this they remained at New-York about two months, and the principal part of this time pent up in a small shanty at Niblo's garden; here they fell off some, from their unfavorable situation and bad management in their keep. They had thus stood on hand, on account of the great price asked for them. Except up to this time, one pair was sold to a gentleman in Virginia, another pair to a gentleman in Ohio, another pair to a gentleman in Somers, near me, at about $250 each pair, viz. buck and ewe. I have in my lot six or eight of the most choice ewes of the whole lot, and one buck, of the first choice, a sheep (acknowledged by all who have seen him, of the most competent judges) to be more splendid than any thing of the kind they have ever seen. I have quite a number of other very superior sheep of these kinds, viz. Bakewell, Leicester, &c. but my Lincolns, notwithstanding the great change they have recently undergone, are looking better under the same treatment, than any sheep I have.

---

* In the last ten years, the maclura, in our nursery, has been killed, nearly to the ground, in at least eight winters.

† The wood of the three-thorned acacia is hard, and, like the hickory, when kept dry, is liable to injured by an insect, whose ravages are termed powder-post. In the ground, or in water, it is very durable.—*Con.*

‡ Pound for pound.—*Con.*

I fear I have already taxed your patience too much. I have said more for the information of those that may inquire of you for improved sheep. I shall have only but few of my full blood Lincolns for sale this year, at least, and should not feel willing or pleased, to *sell one of them* into the hands of any man, who would not be likely do justice to them. I have obtained them at a heavy cost, and shall be satisfied to breed them only for the butcher, if the farmers will not have them. Yours, truly,

LEONARD D. CLIFT.

POTATO DROPPER.

Montgomery county, Md. Dec. 22, 1836.

J. Buel, Esq.—Sir—As the cultivation of the potato makes some figure in your columns, I have taken the liberty of troubling you with some account of an implement that I have used for a few years in planting my potatoes. The following figure may facilitate the explanation of it.

Fig. 1.

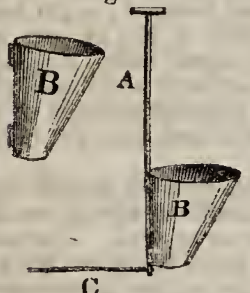
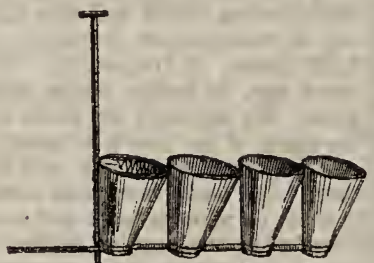


Fig. 2.



A. represents the staff, made of some light wood, of a size and length that may be conveniently handled by the laborer in an erect posture, the inferior end shod with metal.

B. represents the open hopper, in the shape of an inverted cone, made of tin, soal leather, or any other material that may be preferred. The one that I have used is made of the stiffest paste-board. Tin is preferable, taking care to have the circumference of the apertures, particularly the one next the earth, armed with large wire. The perpendicular side of the hopper is pinned to the side of the staff, the inferior ends of the hopper and staff being nearly even.

C. represents the rod or index, of metal or tough wood, which is inserted, at right angles, into the staff, as near the end as may be. The length of the index is determined by the distance the potato sets are to occupy in the drill or furrow.

The operator grasps the staff with his left hand, and, holding it perpendicularly, places the hopper in the furrow, resting it upon the earth, and drops the potato through it; then placing the end of the index against the potato just dropped, another is passed through it, and so on. A bag, holding about a peck, strapped over the shoulders and resting upon the breast, is what I have used for the purpose of carrying the seed.

By the use of this machine, the operator is saved the fatigue of stooping—the potatoes lie where they fall, as may be proved by dropping them through this machine on a plank floor—the distance is accurately measured by the index, and each seed has precisely the same quantity of ground to support it.

I have fancied that the potatoes dropped in this manner, have attained greater uniformity of size, than those planted in the usual mode.

Several of these hoppers might be attached together to one staff, where the sets are to stand very near together, as shown by fig. 2.

Yours respectfully, A SUBSCRIBER.

P. S. The staff of the potato dropper I have used is, upon measurement, 4½ feet in length, and the hopper a foot high, the mouth of it 8 inches in diameter, the outlet at the bottom about 2 inches. The size of the last, of course, depends upon the size of the seed. The bottom of the hopper and the index about a half inch from the lower end of the staff.

STATE AGRICULTURAL CONVENTION.

A State Agricultural Convention convened at the Capitol, on the 2d of February. Judge Pettit, of Onondaga, was called temporarily to the Chair, and J. B. Duane of Schenectady, and Dr. Spoor of Greene, appointed Secretaries pro tem. On the Secretaries registering the names of the gentlemen in attendance, the number was found to be about one hundred and fifty, and representing forty counties.

On motion of Mr. Gray of Chemung,

A committee of nomination was appointed, consisting of—

Mr. Labaugh of the	1st	Senatorial	district.
" Cash of the	2d	do	do
" J. Townsend of the	3d	do	do
" E. Smith of the	4th	do	do
" Pond of the	5th	do	do
" Gray of the	6th	do	do
" Baldwin of the	7th	do	do
" Allen of the	8th	do	do

The committee, after consultation, recommended the following officers, and their nomination was unanimously confirmed by the Convention, viz:

ANTHONY VAN BERGEN, of Greene, President.

Henry F. Jones of Queens, John Townsend of Albany, Andrew S. Pond of Oneida, George Pettit of Onondaga,	Vice-Presidents.
David Sheldon of Dutchess, Joseph W. Richards of Washington, Henry S. Randall of Cortland, Hiram M'Niel of Niagara,	Secretaries.

On motion of Mr. Viele of Rensselaer, Messrs. Pitts of the 1st, Davis of the 2d, Buel of the 3d, Richards of the 4th, Bigelow of the 5th, Patterson of the 6th, Robinson of the 7th, and Allen of the 8th district, were appointed a committee to report resolutions for the consideration of the Convention.

On motion of Mr. Buel of Albany,

A committee was appointed, consisting of Judge Spencer and J. B. Nott of Albany, and A. Walsh of Rensselaer, to examine and report on the Silk Spinner and Twister of Mr. Brooks, exhibited in the Capitol.

On motion of Mr. Allen of Erie, it was

Resolved, That Messrs. Mather and Hall, two of the State Geologists now in the city, be requested to report to this Convention, the probable benefits to the Agriculture of this State which may result from the geological surveys now in progress.

The Convention then adjourned till 4 o'clock on Friday afternoon.

Friday, February 3.

Mr. Buel, from the committee appointed to report resolutions for the consideration of the Convention, reported in part, the following:

Resolved, That in the opinion of this Convention, agriculture is the great business of the State; that upon its resources and improvements, the merchant, mechanic, manufacturer, and all other members of society, must depend mainly, for subsistence and for wealth ; and that upon the intelligence and virtue of those who manage its labors—comprising, as they do, the mass of our population —must materially depend our moral and intellectual character as a people ;—

That hence it is of primary importance to all, that this great branch of labor should be specially encouraged and honored, and that the agriculturist should himself receive all those mental aids, and that stimulus to industry, which are calculated to make him more prosperous in his business, and more useful to society.

That we are now particularly admonished, by the scarcity and very high price of all the products of agriculture, to put forth our efforts to enlighten its labors and increase its productions ;—

That to the Legislature of the state, as the constituted guardians of the public weal, particularly appertains the duty of fostering and improving this primary source of our wealth and happiness ;—

That from the experience of the past, at home and abroad, this convention are confident, that the patronage of the government may be advantageously extended, and without detriment to the financial operations of its treasury, to this great object ;—

1. By so raising the standard of instruction to the children of agriculture, as to enable them to understand, and to apply to productive labor, the best practices and improvements of the age ; and,

2. By imitating the successful examples furnished by other governments, of calling forth the skill, industry and competition of our citizens, by pecuniary rewards and honorary distinctions ;—

That influenced by these views, the Convention respectfully recommend to the Legislature, to appropriate a permanent fund, the interest of which shall amount to at least *thirty thousand dollars* a year, to encourage the establishment, and to sustain in usefulness, a central, and county agricultural societies, and to promote, generally, the interests of husbandry, under such regulations and restrictions as to them shall seem meet ; and that provision be made by law, for introducing into our common schools, such books of elementary science, as may be best calculated to accelerate our improvements in the arts of productive labor.

Resolved, That there are many new implements of husbandry, calculated greatly to abridge agricultural labor; and to increase its products and its profits ; that there are many also offered for sale, that are unworthy of public patronage ; that from the difficulty, in the farmer, of determining, on superficial inspection, the relative merits of such implements, many impositions are sustained, and an injurious want of confidence necessarily exists in those which are eminently useful ; that to remedy these evils, and to facilitate the more general introduction of labor-saving implements, it be recommended to the State Agricultural Society, to appoint a board of inspectors to examine, thoroughly to test, and to determine and certify, the relative merits of all new farm implements and machinery which may be presented to them for inspection ; that said board comprise men of mechanical science, practical machinists, and experienced farmers ; that they hold semi-annual meetings for this purpose, and that it be respectfully recommended to the legislature, to provide a reasonable compensation to the members of said board, while necessarily engaged in the duties of their appointment.

Resolved, That this convention recommend the substitution of a money, instead of a labor assessment, for the making and keeping in repair our common roads.

Mr. Viele, of Rensselaer, moved the adoption of the preceding resolutions, and went into a very able argument to show that the objects they proposed were eminently calculated to promote the great ends of free government, and to accelerate our progress in improvement and in wealth.

The resolutions were unanimously adopted, and a copy thereof ordered to be presented to each house of the legislature.

On motion of Mr. Beekman, of Columbia,

Resolved, That Judge Spencer and J. Buel, of Albany, and H. L. Baldwin, of Onondaga, be a committee to collect statistics upon the state of our agriculture, with a view of enlightening the public mind as to the causes which have led to the necessity of importing foreign wheat, rye, barley, oats & hay, for the supply of an agricultural nation.

Resolved, That J. Buel, Prof. Mather and L. C. Ball, be constituted a committee to collect facts in regard to the history and habits of the grain worm, (*tipuli tritici*) to its ravages upon our farm crops, and to the means, if any are known, of preventing its depredations ; and that they be requested to report to the next Agricultural Convention.

Resolved, That J. P. Beekman, of Columbia, A. Van Bergen of Greene, J. J. Viele and A. Walsh of Rensselaer, be a committee to inquire whether, in the distribution of public moneys in aid of agriculture, a better mode can be devised, than that of giving it to county agricultural societies, to be awarded in premiums.

On motion of Mr. Ogden, of Yates.

Resolved, That in the opinion of this convention the tariff compromise of 1833, so far as regards the protection it affords to the products of our soil, ought to remain inviolate.

Resolved, That the Secretary forward to each of our representatives in Congress from this state a copy of the preceding resolution.

On motion of Mr. McCullock, of Rensselaer,

Resolved, That in the opinion of this convention, the interests of agriculture would be promoted, and the business intercourse of the country much facilitated, by the establishment of periodical *fairs*—not of exhibition merely, but for the exchange of the ordinary productions of the country ; and that the design of a plan, for the introduction into this state of a system, the vast utility of which has been tested in other countries, by the experience of ages, is deserving the consideration of the Legislature, and of the agricultural interests.

Mr. A. Walsh, from the committee appointed to examine Brooks' Silk Spinner and Twister, reported.

That in the absence of Mr. Nott, Messrs. Spencer and Walsh have seen the machine in operation, and critically examined it ; and that they are of opinion that it is not only a most ingenious invention, but in their judgment cannot fail of becoming eminently useful. It seems to solve the problem, which has induced great doubt, whether the culture of Silk in the United States would be profitably prosecuted, from the difficulty of good reeling of silk from cocoons, without very considerable manual instruction. The committee is satisfied, that an ingenious female can almost immediately learn to reel on Mr. Brooks' machine, in a perfect manner.

As the machine has been seen by the convention, the committee forbear to describe it particularly ; but they recommend to the convention a donation to Mr. Brooks, as a small reward for the immense benefits this invention will confer on the silk culturists of this country.

On motion of Mr. Allen, of Erie,

Resolved, That we approve of "*The Farmers' School Book*," by J. Orville Taylor, and that we earnestly recommend its introduction, as a reading class-book, in all our common schools.

The following petition, signed by a number of highly respectable citizens, was then read :

To the Legislature of the State New-York :

The petition of the undersigned represents,

That a law was passed at the last session of the Legislature "to incorporate the New-York State Agricultural School, for instruction in literature and science, and improvement in scientific and practical agriculture, and in the mechanic arts :"—

That from the known utility of like schools in Europe, your petitioners believe the school contemplated by that act will tend to enlighten labor in our useful arts, to increase greatly its products, and to subserve the best interests of the state ;

That they consider the plan of combining labor and study, in juvenile education, with practical instructions in the arts, particularly in agriculture, as among the great improvements of the age, calculated to increase our resources and enjoyments, and to extend and perpetuate the rule of rational freedom ;—and as particularly adapted to our wants as a free people ;—

That from these considerations, a portion of your petitioners have been induced to become subscribers to its stock, and not from the hope of gain, as is evidenced from their not asking, and not being permitted to take, more than five per cent upon their investment.

That they are desirous of giving to the school all the advantages which its great importance demands, and of placing its benefits within the reach of the most humble in life, and obtaining for it the countenance and support,—matters of moment to a young institution,—of the Legislature of the State ;—and

That the better to enable them to carry out, as they trust, these beneficent designs, they respectfully ask of your honorable body, such an appropriation from the public treasury, to aid in the purchase of a library, apparatus, &c. as a liberal regard for the interests of the state will permit, and its resources warrant ;—or

That the comptroller be authorized to subscribe, on behalf of the state, to the stock of said school.

Albany, Feb. 1*st*, 1837.

Whereupon it was unanimously

Resolved, That this convention concur in the sentiments set forth in said petition, and that it cordially unite in the prayer of the petitioners.

Mr. Mather, of the State Geological corps, read the following report:

The Agricultural Convention having requested a statement of some of the advantages which may probably result to the agricultural, and other interests, from the geological survey of the state now in progress, I will proceed to sketch a slight outline.

When we look around upon the surface of our country, we are apt to conclude that the materials forming it, are arranged without any regularity or order; but it is not so. The laborious investigations of the geologist and mineralogist have demonstrated, that there *is a regular order in which these aggregate masses of strata called formations*, are super-imposed upon each other, and this order is never inverted.

Another fact of equal importance is, that certain mineral substances are most constantly associated with each other, and also, that they are found in particular kinds of rocks.

The geologist, guided by these facts, in traversing any district of country, knows what mineral substances and rocks will probably be found. He is thus guided in his search for coal, valuable ores, salt, gypsum, limestone, for marbles, for lime and hydraulic cement, and all the various minerals and rocks which can be applied to useful purposes.

Geology thus serves to point out the geographical positions in which particular minerals may be expected, and geological investigations serve to trace out the particular localities, so that the public may reap the benefit.

The geological survey now in progress, has made such developments of our rich and varied mineral resources, as will serve to introduce various new branches of industry, afford new fields for profitable employment and investment of capital, and add a new impulse to the rapidly growing prosperity of the state.

Another important object of the survey will be to undeceive the public mind in relation to the numerous fruitless researches for coal. silver, gold, tin, lead, &c. which are so often sought in the bowels of the earth where there is not even a *probability* that they will be found. Hundreds of our fellow-citizens have been duped by the interested motives of a class of ignorant men, who pretend by mineral rods, and other means, to have the power of discovering valuable metals. In these persons, some of our citizens have placed such implicit confidence, that their whole estates have been expended ere they have repented of their credulity. The mining mania along the Hudson is for finding coal, and it has very frequently been announced, that valuable beds had been discovered. In some instances companies have been formed, and explorations made, but every instance which has come under my observation was fruitless, and any well informed or practical geologist would have said at once, on seeing the place, that there was no indications sufficient to justify the expenditure of even a single dollar.

It is believed that in the valley of the Hudson alone, enough had been expended in fruitless mining enterprises to defray the whole expense of the geological survey.

The landholder and farmer are perhaps more interested in the investigations of geology than any other classes of the community, and it is a matter of great importance to them to estimate correctly, not only the *agricultural value*, but the *mineral wealth* of their lands.

The farmer, perhaps, may suppose, that geological investigation and science have little to do with agriculture: if so, he is in error. The examination of soils, (which, except the wash from hills, rivers, &c. result from the decomposition of the *subjacent materials,*) is one of the most important of all the economical applications of geology. The applications of geological science have not unfrequently converted barren wastes and stagnant marshes into fruitful fields. Examples have been so numerous that it is deemed unnecessary to mention any in this brief sketch.

In regard to the economical application of geology to the agricultural interests of the first Geological District, I must beg leave to refer to the "Geological Report," which will be published under the authority of the Legislature, as it would be improper for me to mention them before its appearance. In that report, this and other subjects connected with agriculture are discussed more extensively than is practicable, while preparing this hasty article: numerous suggestions have been made in regard to improved methods of cultivation, and new manures, and varied application of those now in use have been recommended.

Although our soils now yield millions to our farmers, yet, they are capable of much higher cultivation; and our deposites of ores, salt, gypsum, limestones, marbles, granites, peat, marl, &c. productive as they already are, have scarcely begun to yield their rich and productive harvests. Comparatively few of their localities have yet been brought to the view of the public eye.

A knowledge of some of the applications of geology are of the highest importance to the engineer in the construction and location of public works, such as roads, bridges, aqueducts, canals, rail-roads, public edifices, fortifications, breakwaters, &c.

The applications of geology are of so great economical importance to every class of our citizens, that it is not only hoped that such a knowledge of this subject as will be practically useful may be generally diffused through the community, by means of our schools, academies, and colleges; but that a department will be created in the proposed agricultural college or school, in which the applications of chemistry, mineralogy, geology, &c. to agriculture, mining, metallurgy, and the arts, shall be thoroughly and systematically taught.

I have mentioned metallurgy, mining and the arts in connection with the applications of the science, because, it is mainly owing to improvements made in them, that agriculture, civilization, and the arts have progressed to their present improved states.

New-York has made a more liberal appropriation for the objects of the geological survey than any other state, and if the results be worth any thing to the community, they will be of infinitely more value than the amount expended, and it is probable that the revenues arising from the additional transport on our rail-roads and canals, will, in a single year, more than compensate for the whole appropriation.

In preparing this article I have had time only to glance, without much order, at a few of the many important advantages which will result from the geological survey; but it is confidently believed, that if it be carried on with that minuteness of detail, which is necessary to the development of our rich and varied resources, as great an impulse will be given to the general interests of the state, as has been by the Erie canal; and New-York, in this project, as well as in that, will have the credit of having been guided by the most liberal and enlarged views of state policy, and of having set an example worthy of imitation by others.

On motion of Mr. Baldwin, of Onondaga,

Resolved, That the thanks of this convention be tendered to Messrs. Mather and Hall, for their report, and that a copy be requested for publication.

On motion of Mr. Allen, of Erie,

Resolved, That Green's Straw Cutter, manufactured by J. D. Shuler, and exhibited in operation to the members of this convention, be recommended to the farmers of the country, as an article perfect of its kind, and of great economy in feeding farm stock.

The convention then adjourned to 7 o'clock in the evening.

7 *o'clock, P. M. Feb.* 4.

On motion of Mr. Allen, of Erie,

Resolved, That the State of New-York, powerful in resources and in enterprise, as she is great in territory and population, is eminently qualified to excel in her agriculture, and in the wealth and intelligence of her husbandmen; and that it is therefore incumbent on her legislature, with the ample means now at their command, to call forth this new source of greatness, by a liberal provision for her agricultural institutions.

Upon this resolution, which was cordially and unanimously adopted, very able speeches were made by Mr. Allen, Mr. Ball of Rensselaer, Mr. Cheever of Albany, Mr. Baldwin of Onondaga, Mr. Shuler of Niagara, Mr. Beekman of Columbia, Mr. Richards of Washington, Mr. Randall of Cortland, &c.

On motion of Mr. Beekman, of Columbia,

Resolved, That the exhibitions made to this convention, of silk fabrics and thread, made from the indigenous mulberry of our country, affords ample evidence that the silk culture is admirably adapted to our soil and climate, and that nature has bountifully supplied us, should foreign resources fail, with an excellent material for its prosecution.

On motion of Mr. Randall, of Cortland,

Resolved, That the several gentlemen who have addressed this convention, be requested to furnish a copy of their remarks to the convention for publication in the Cultivator.

Resolved, That the publishers of newspapers in this state, friendly to agricultural improvement, be respectfully solicited to give publicity to the proceedings of this convention.

On motion of Mr. Viele, of Rensselaer.

Resolved, That it be recommended, that an agricultural convention be convened at the City Hotel in Albany, on the first Thursday of February next, at 10 o'clock, A. M.; that the several counties in the state take proper measures to be represented therein, and that the secretaries of this convention cause timely notice thereof to be given in the public papers.

The convention then adjourned *sine die.*

J. W. RICHARDS, *Publishing Secretary.*

ANNUAL MEETING
OF THE
NEW-YORK STATE AGRICULTURAL SOCIETY.

At a meeting of the New-York State Agricultural Society, held at the Capitol in the city of Albany, February 3, 1837, Archibald McIntyre, President, took the chair.

On motion of Mr. J. P. Beekman, the following preamble and resolution were adopted:

Whereas, since the last meeting of the New-York State Agricultural Society, it has been deprived, by the death of the Hon. J. B. Yates, of Madison county, of one of its most efficient and talented members—one of its earliest friends and most liberal patrons—whose zeal in behalf of this society was more or less manifested upon every proper occasion, and of whose intelligence we could and did so largely avail ourselves at the last annual meeting: therefore,

Resolved, That, entertaining a high sense of the character of the Hon. J. B. Yates, our late member, we order the above preamble and accompanying resolution to be recorded as among the proceedings of this society, and that a copy be forwarded by the secretary, to the widow of the deceased, as an evidence not only of the estimation in which we held our late member, but of our sympathy for the loss of her excellent husband.

On motion,

Resolved, That Joel B. Nott, Jesse Buel, Henry Burden, John P. Beekman and Anthony Van Bergen, be constituted a Board of Inspectors, to examine, thoroughly to test, and to determine and certify, the merits of all new farm implements and machinery which may be presented for their examination; and that the members of the said board be requested to meet semi-annually, at such time and place as the chairman shall appoint, to examine and test the implements which may be offered for their inspection.

On motion,

Resolved, That the treasurer forward to the members of this society, a statement of the amount due from them respectively, and request payment.

On motion of Mr. Walsh,

Resolved, That a committee of three be appointed to inquire into the necessity and importance of an increased attention to horticulture and the household arts, as intimately connected with the improvement and promotion of agriculture, and that they report at the next annual meeting of the society.

Whereupon, the following persons were appointed to be said committe:—Messrs. Alexander Walsh, John J. Viele, and John Keyes Paige.

On motion of Mr. Beekman,

Resolved, That Jesse Buel, L. Chandler Ball, and W. Aug. S. North, be a committee to collect statistical facts in relation to the culture of the beet and the manufacture of sugar therefrom, and that they report at the next annual meeting of the society.

On motion of Mr. Buel,

Resolved, That Messrs. Ambrose Spencer, John B. Duane and John Keyes Paige, be a committee to collect statistical facts in relation to the silk business, and that said committee be requested to report to the society at their next annual meeting; and further, that the said committee make inquiry as to the adaptation of the indigenous mulberry for the production of silk.

On motion of Mr. Duane,

Resolved, That a committee be nominated to wait on the joint committee of the two houses of the Legislature, in relation to so much of the Governor's Message as relates to the distribution of the surplus revenue, to request them to delay their report to the Legislature until the joint views of the State Agricultural Society, and State Convention can be presented to them.

Whereupon, Messrs. John B. Duane, J. P. Beekman, Anthony Van Bergen, and the President and Secretary were appointed said committee.

On motion,

Resolved, That a committee of five be appointed to nominate suitable persons as officers of the society for the ensuing year.

Whereupon, the following persons were appointed:—Messrs. Allen, Buel, Van Bergen, Baldwin and Randall.

The nominating committee having reported, the society proceeded to the election of officers for the ensuing year, and the following persons were duly elected:—

JOHN P. BEEKMAN, *President,*
ANTHONY VAN BERGEN, *First Vice-President,*
W. AUG. S. NORTH, *Second* do.
ARCHIBALD McINTYRE, *Third* do.
HARVEY BALDWIN, *Fourth* do.
JESSE BUEL, *Corresponding Secretary,*
JOHN KEYES PAIGE, *Recording Secretary,*
CALEB N. BEMENT, *Treasurer,*
JOHN TOWNSEND,
ALEXANDER WALSH,
JAMES McNAUGHTON, } *Executive Committee.*
JESSE BUEL,
HENRY D. GROVE,

On motion of Mr. North,

Resolved, That committees be appointed, whose business it shall be to report at the next annual meeting, the progress of improvement in *Neat Stock, Horses, Sheep* and *Swine,* together with any information they may be able to obtain, interesting to the Agricultural interest generally, relating to those subjects.

Whereupon, the following persons were appointed to be said committees:—

On Neat Stock—Messrs. Francis Rotch, John P. Beekman, and W. Aug. S. North.

On Horses—Messrs. Lewis F. Allen, John C. Stevens and Cadwallader D. Colden.

On Sheep—Messrs. Henry S. Randall, John B. Duane, Henry D. Grove, Caleb N. Bement and Francis Rotch.

On Swine—Messrs. Jesse Buel, John J. Viele and Caleb N. Bement.

On motion of Mr. Shuler,

Resolved, That a committee of three be appointed to report the condition of the several county agricultural societies, to the corresponding seretary, as opportunity may occur.

Whereupon, J. D. Shuler, Henry S. Randall and L. Chandler Ball were appointed said committee.

On motion of Mr. Allen,

Resolved, That the proceedings of this society be published in the three agricultural papers published in this state, and in such other papers as are favorable to the agricultural interests.

On motion,

Resolved, That the executive committee report at the next annual meeting of this society.

The annual address to the society was then delivered, by Prof. James McNaughton.

On motion of Mr. Beekman,

Resolved, That the thanks of the society be presented to Dr. James McNaughton, for his very excellent and instructive address, and that a copy be requested for publication.

On motion of Mr. Allen,

Resolved, That the thanks of this society be tendered to the late president thereof, for the able and satisfactory manner in which he has presided over the same.

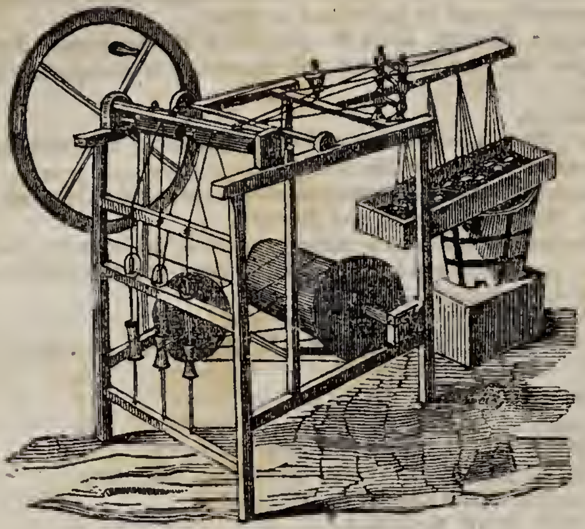
The society then adjourned.

There are three things to beware of through life. When a man is young, let him beware of his appetites; when middle aged, of his passions; and when old, of covetousness particularly.—*Confucius.*

Justice consists in doing injury to no man; decency, in offending none.—*Tully.*

The strongest symptom of wisdom in man, is his being sensible of his own follies.—*French.* We do not correct our follies until we are sensible they are such.

BROOKS' SILK SPINNER AND TWISTER.—Fig. 3.



This machine, the cut of which came to hand after our paper was made up, is noticed in the proceedings of the State Agricultural Convention, in the communication of Judge Spencer, and in an editorial article. It is worth millions to American Silk Culturists.

GLOSSARY OF CHEMICAL TERMS.

[As it is tedious to give explanations of terms in chemistry, when they occur, and as they are not always understood by the reader, we give a glossary of terms most in use, which may be referred to at pleasure. The *names* of most of the compounds denote the substances of which they are composed.]

Absorption, the conversion of a gaseous fluid into a liquid or solid.
Acetates, salts formed by the combination of any base with the acetic acid.
Acetate of lead, sugar of lead.
Acids, compounds of bases with oxygen, hydrogen, &c.
Acetic acid, concentrated vinegar.
Æther, a volatile liquor formed of alcohol and an acid.
Alkali, fixed, or fossil, or mineral, soda.
Alkali, vegetable, potash.
Alkali, volatile, ammonia.
Alum, a compound of sulphuric acid, alumine and potash, or ammonia.
Alumine, earth of alum; pure argillaceous clay.
Anthracite, coal containing no bitumen.
Areometer, a graduated glass instrument with a bulb, by which the specific gravity of liquids is taken; an hydrometer.
Affinity, a force by which substances of *different* kinds unite.
Argillaceous, of the nature of clay.
Alcohol, rectified spirits of wine.
Alluvial, depositions of soil made by water.
Aroma, the odor which arises from certain vegetables, or their infusions.
Azote, nitrogen; the basis of atmospheric air, of ammonia, nitrous acid, &c.
Barometer, an instrument which shows the variation of the atmospheric pressure.
Bell-metal, an alloy of tin and copper.
Brass, an alloy of copper and zinc.
Calcareous, partaking of the nature of lime.
Caloric, the chemical term for the matter of heat.
Caloric, free, radiant heat, or that which is not in chemical union with other bodies.
Caloric, latent, the matter of heat in a state of combination; not perceptible.
Carbon, the base of diamond and of charcoal.
Chalybeate, a term applied to mineral waters impregnated with iron.
Carbonic acid, carbon combined with oxygen.
Citric acid, the acid of lemons.
Cohesion, a force inherent in all the particles of bodies, by which they are prevented from falling to pieces.
Carbonate of lime, the compounds of carbonic acid and lime, under the names of limestone, marble, calcareous spar, chalk, &c.
Carbonate of potash, common potash; pearlash; salt of tartar.
Concentration, the act of increasing the specific gravity of bodies.
Decomposition, separation of the constituent principles of compound bodies.
Effervescence, an intense motion which takes place in certain bodies caused by the escape of a gaseous substance.
Efflorescence, the pulverulent form of saline bodies by exposure to the air, in consequence of losing their water of crystallization.
Elements, properly, are the simple constituent parts of bodies, incapable of decomposition, or further division.
Essences, the essential oils obtained by distillation from odoriferous vegetable substances.
Evaporation, dissipation of fluids by heat; evaporating fluids into vapor by heat.
Fermentation, a peculiar spontaneons motion, which occurs in vegetable substances, if exposed to proper temperature, under certain circumstances. It is usually divided into the acetous, vinous and putrefactive stages.
Fluidity, a term applied to all liquid substances. Solids are converted into fluids by combining with a certain portion of caloric.
Gas, all solid substances, when converted into permanently elastic fluids by caloric, are called gases.
Gelatine, a chemical term for animal jelly.
Gluten, a vegetable substance allied to gelatine.
Gravity, that property by which bodies fall to the earth.
Gravity, specific, is the weight of any solid or fluid body, compared with the *same measure* of distilled water.
Gallic acid, the acid found in gall nuts.
Hydrates. Those substances which have formed so intimate union with water, as to solidify the water, and render it one of its component parts, are called hydrates.
Hydrogen, the base of water; inflammable air.
Hydrate of lime, lime slaked with water.
Hydrometer, see areometer.
Incineration, the burning of vegetables for the sake of their ashes.
Laboratory. A room fitted up with apparatus for the performance of chemical operations.
Lute, a composition for closing the junctures of chemical vessels, &c.
Lime, quick-lime; calcareous earth; oxide of calcium.
Maceration, softening a solid body in a fluid, without impregnating the fluid with it.
Mucillage, a vegetable principle allied to gum.
Muriates, salts formed by the combination of any base with muriatic acid.
Muriatic acid, acid of sea salt.
Malic acid, acid of apples.
Muriate of soda, common salt.
Malleability. That property of metals which gives them the capacity of being extended and flattened by hammering.
Menstruum, the fluid in which a *solid* body is dissolved.
Mineral, any natural substance of a metallic, earthy or saline nature.
Mordants, substances which have a chemical affinity for particular colors, as alum.
Nitrate of potash, salt-petre, nitre.
Nitrates, salts formed by the combination of any base with nitric acid.
Neutral salt. A substance formed by the union of an acid with an alkali, an earth, or a metalic oxide, in such proportions as to saturate both the base and the acid.
Oxide. Any substance combined with oxygen, in a proportion not sufficient to produce acidity; rust of metals.
Oxidize, to combine oxygen with a body without producing acidity.
Oxygen, a simple substance, composing the *greatest* part of water, and part of atmospheric air; vital air.
Oxygen gas, oxygen converted into gas by caloric.
Oxalic acid, the acid found in sorrel
Pellicle, a thin skin which forms on the surface of saline and other liquids, when boiled down to a certain strength.
Pyrolignic acid, obtained from wood by burning.
Sal, salt; a class of bodies.
Sulphate of copper, blue vitriol; blue stone.
Sulphate of iron, copperas; green vitriol.
Sulphate of lime, gypsum.
Sulphate of soda, glaubers salts.
Sulphate of zinc, white vitriol.
Sulphate of potash, liver of sulphur; sulphur and potash fused together.
Sulphate of magnesia, epsom salts.
Sulphuric acid, oil of vitriol; vitriolic acid.
Super-tartrat of potash, cream of tartar.
Subacetate of copper, verdigris.
Saturation, the art of impregnating a fluid with another substance till no more can be received or imbibed.
Silicious earths. A term used to describe a variety of natural substances which are composed chiefly of silica, as quartz, flint, sand, &c.

Simple substances, synonymous with elements; not divisible.
Smelting. The operation of fusing ores, to separate the metal from the sulphur, arsenic and other matters with which they are combined.
Solution, the perfect union of a solid substance with a fluid.
Sulphates, *sulphats*, salts formed by the combination of any base with sulphuric acid.
Sulphurets, combinations of alkalis or metals with sulphur.
Tartrates, salts formed by a combination of any base with the acid of tartar.
Tartaric acid, the acid found in the grape.
Torrefaction, roasting of ores.
Trituration, the pulverizing, or union of bodies by friction.
Thermometer, an instrument to show the relative heat of bodies, and of the atmosphere.
Vacuum, a space unoccupied by matter.

SHEEP HUSBANDRY.

THE SHEEP.—(*Continued from page* 149, *Vol.* 3.)

SOUNDNESS.

Soundness is intimately connected with "trueness;" it means strength of the fibre generally, and also a freedom from those breaches or withered portions to which allusion has been made.—The unassisted eye, or at least the eye of the wool-stapler or sorter, will readily detect the breaches; but the hair generally may not possess a degree of strength proportionate to its bulk. This is ascertained by drawing a few hairs out of the staple, and grasping each of them singly by both ends, and pulling them until they break.

Soundness is a very important property in wool, and was absolutely indispensable in long wool when that alone was subjected to the operation of the comb. If it broke in pieces in the act of combing, the shreds (termed noils) were useless in the worsted manufactory, and, indeed, were regarded as little better than refuse: when it is recollected that the clothing-wools are not required to possess so great a degree of strength as the old combing ones, but, on the contrary, would be less useful if they had this strength; and that now, many short wools being made to undergo the process of combing,—the sound portion of one part of the staple may be mixed with the tender fibre from another part of another fleece, and, possibly, even a denser pile may be raised on the surface of the cloth. There is, however, a limit to the tenderness of that clothing-wool, which may pass muster with the manufacturer. Not only the pile may be properly broken under the operation of the card, but it may become so comminuted that it will either be driven away, dissipated by the action of the cylinders, or it may afterwards break, and the fabric of the cloth be destroyed under the beating of the fulling-mill.

The wool of sickly or murrain sheep is generally not only finer than in a healthy sheep of the same breed, but it possesses this tender quality, not to be detected by the eye, nor even by the microscope; unless that it may be suspected by a slighter degree of polish, and not having so full and round an appearance.

Age has often much effect in deteriorating the fleece. The yolk lessens in quantity after the sheep, and especially the ewe, is six years old; and, to the decrease of the yolk, there soon follows a hard, inelastic, unyielding character of the wool, that renders it useless for several purposes for which the younger, and especially the wether-wool, is sought. Mr. Luccock applies a very singular, but appropriate word, to this old ewe-wool—"it dies in the bowl"—it sinks in the water in which it is washed—and acquires there a shrivelled and dead-like appearance. It is difficult to spin, and it materially injures the manufacture in which it is employed.

The wool often becomes considerably injured by felting while it is on the sheep's back. This is principally seen in the heavy breeds, especially those that are neglected and half-starved. It generally begins in the winter season, when the coat has been completely saturated with wet; and it increases until shearing time, unless the cot separates from the wool beneath and drops off. The *cotting* of wool is only an injurious extension of the process of felting—the wool forms into a hard thick knot that can scarcely ever be unravelled.

Some breeds are more subject than others to this defect: the Morfe sheep and the Cheviots have been especially accused of possessing this harling property in the wool. It occurs before the wool has begun to separate from the skin; but then by its weight, and the manner in which it acts on the portion below, the wool begins to be gradually detached from the back and connected only by a few scattered hairs, while a new crop grows underneath.

Collections of a similar kind are frequently seen under the ears of long and fine-haired spaniels.

Mr. Parkinson speaks of two diseases, or rather defects of wool. The first he calls a *feathery* wool, set very thinly upon the pelt, and falling very closely together. "When shorn it laps up in very small bundles, and weighs heavy, according to its substance, but the whole fleeces are of light weight; it also is weak and curled, and breaks much in combing." This, with his wonted prejudice against the improved Leicesters, he affirms to be the usual character of their wool.

The other defect he calls *watery* wool,—"it is so full of grease that it looks damp; and a stranger to this kind of wool would be assured that it had been wetted, and the proper smell of the wool will alone undeceive him." This wool, according to him, is frequently seen on the coarse Lincolns. He says that this *watery* wool is a very bad sort, and on poor sheep is frequently cotted, and at all times is of an objectionable quality for the manufacturer.

Wool is generally injured by keeping. It will probably increase a little in weight for a few months, especially if kept in a damp place; but after that it will somewhat rapidly become lighter, until a very considerable loss will often be sustained. This, however, is not the worst of the case; for, except very great care is taken, the moth will get into the bundles and injure and destroy the staple; and that which remains untouched by them will become considerably harsher and less pliable. If to this the loss of the interest of money is added, it will be seen that he seldom acts wisely who long hoards his wool, when he can obtain what approaches to a fair remunerating price for it.—*Library of Useful Knowledge, Farmers' Series.*

Young Men's Department.

HINTS TO YOUNG FARMERS.—No. V.

CULTURE OF THE MIND.

You know well, that one piece of land, a garden for instance, yields vastly more than another piece of ground of equal natural fertility. And you know equally well, that one man abounds more in knowledge and usefulness, than another to whom nature has been alike bountiful. It is culture—it is the industry and perseverance of man, exerted in one case, and not in the other, that produces the marked contrast in both. The cultivator is sure to be rewarded, in his harvests, for the care and labor which he bestows upon his soil; and the reward is no less certain to him who devotes his leisure hours to the culture of his mind. The soil administers to our animal wants. Knowledge not only greatly assists in supplying these wants, but is the primary source of intellectual wealth, which dollars alone cannot give, and, when consorted with good habits, tends to refine, elevate and distinguish men above their fellows. Talent is not hereditary. You will see, on looking around, that most of the distinguished men of our country have sprung from humble or obscure parentage. They are indebted for present distinction to the culture which they have themselves bestowed upon their minds. The road to usefulness and honorable distinction is equally open to you, and the time has arrived when you must decide, whether you will compete for the noble prize.

If you wish to be prosperous in your business—to know, and to profit by, the improvements of the age—cultivate your mind—for this is the great labor-saving machine. If you wish to see your children intelligent, thriving and respected, teach them, by example, to cultivate the mind. If you would be useful to your friends, and merit the confidence and esteem of your neighbors, seek early to qualify yourselves for the duties of social life, by the culture of the mind. If you aspire to intellectual enjoyments, which flow from the study of the material world—from the order, harmony and beauty, which meet us in every walk, in the manifold and wonderful works of the Creator—cultivate the mind. In fine, if you would prosper in your business, in your family and in society, cultivate the mind.

But knowledge is not always wisdom; and therefore, be as scrupulous in regard to your studies, as you are in regard to the seed which you deposit in the soil. You will reap whatever you sow; and the mind is as liable to be cumbered with weeds as is the soil.

Read, therefore, whatever tends to instruct you in your business, to establish in you good habits, and to fit you for the responsible duties of life. Acquaint yourselves with the inventions and improvements of modern art. "Make yourselves acquainted with the general facts of science, with the wondrous laws by which the Almighty governs all around us; and with the endless illustrations of these laws, in the world and in all its parts. The facts of natural history will afford abundant matter for agreeable and useful knowledge. The plants, the animals, the minerals, the soils, of your country and of other countries; the changes of the seasons; the make and composition of all that surrounds you, duly observed, and made the subject of reading, of conversation, of reflection, will at once store your mind, and raise your ideas of the wisdom and goodness of Him, who, it will soon be perceived, has made all things 'by number, weight and measure.' The study of your own frame, your bodily make and constitution, may be made an object at once of interest, instruction and benefit. Early may you be brought to perceive, in the very constitution of your own bodies, much of your duty enjoined by Him who formed you such as you are. Temperance, self-government, moderation, avoidance of all abuse of the body, are written in the very make of the body itself. And it will hence plainly appear, that when our Maker says, abstain from all intemperance, from all impurity, he does but say, "Do thyself no harm." "Who aims at excellence will be above mediocrity; who aims at mediocrity will fall short of it."

HINTS ON DIET.

"*An ounce of prevention is better than a pound of cure.*"

A reasonable indulgence in the abundant supplies of nature, converted by art to the purposes of wholesome food, is one of the comforts added to the maintenance of life. It is an indiscriminate gratification of our tastes, regardless of the consequences that may ensue from it, that is alone blameable. But so great is our general apathy in these respects, that even on the occurrence of diseases, from which we are all more or less sufferers, we scarcely ever reflect on our diet, as the principal, if not the sole cause of them.—We assign them to weather, to infection, to hereditary descent, to spontaneous breeding, as if a disease could originate without a cause; or to any frivolous imaginary source, without suspecting, or being willing to own, mismanagement of ourselves.

We derive the renewal of our blood and juices, which are constantly exhausting, from the substances we take as food. As our food, therefore, is proper or improper, too much or too little, so will our blood and juices be good or bad, overcharged or deficient, and our state of health accordingly good or diseased.

By aliment, or food, is to be understood whatever we eat or drink, including seasonings, such as salt, sugar, spices, vinegar, &c. every thing, in short, which we receive into our stomachs. Our food, therefore, consists not only of such particles as are proper for the nourishment and support of the human body, but likewise contains certain active principles, viz. salts, oils, and spirits, which have the properties of stimulating the solids, quickening the circulation, and making the fluids thinner; thus rendering them more suited to undergo the necessary secretions of the body.

The art of preserving health, and obtaining long life, consists in the use of a moderate quantity of such diet, as shall neither increase the salts and oils, so as to produce disease, nor diminish them, so as to suffer the solids to become relaxed.

It is very difficult, almost impossible, to ascertain what are the predominant qualities either in our bodies or in the food we eat. In practice, therefore, we can have no other rule but observing by experience what it is that hurts or does us good, and what it is our stomachs can digest with facility, or the contrary.

The eating too little is hurtful, as well as eating too much. Neither excess, nor hunger, nor any thing else that passes the bounds of nature, can be good to man.

By loading the stomach, fermentation is checked, and of course digestion impeded; for the natural juice of the stomach has not room to exert itself, and it therefore nauseates its contents, is troubled with eructations, the spirits are oppressed, obstructions ensue, and fever is the consequence. Besides, that when thus overfilled, the stomach presses on the diaphragm, prevents the proper play of the lungs, and occasions uneasiness in our breathing. Hence arise various ill symptoms and depraved effects, enervating the strength, decaying the senses, hastening old age, and shortening life. Though these effects are not immediately perceived, yet they are certain effects of intemperance; for it has been generally observed in great eaters, that, though from custom, a state of youth, and a strong constitution, they have no present inconvenience, but have digested their food, suffered surfeit, and borne their immoderate diet well, if they have not been unexpectedly cut off, they have found the symptoms of old age come on early in life, attended with pains and innumerable disorders.

If we value our health, we must ever make it a rule not to eat to satiety or fulness, but desist while the stomach feels quite easy. Thus we shall be refreshed, light and cheerful; not dull, heavy, or indisposed. Should we be tempted to eat too much at one time, we should eat the less at another. Thus, if our dinner has been larger than usual, let our supper be less, or rather, quite omitted; for there is no man, however careful of his health, who does not occasionally transgress in this way.

These studies are as food to us in our youth—they delight us in more advanced years—they are ornaments to a prosperous state—they afford us comfort and refuge in adversity—they amuse us at home—they are unembarrassing to us when abroad—they pass our nights with us—they accompany us in our travels, and in our rural retirement.—*Cicero*. Coming from such authority, what a strong incentive this passage should be to all young persons, to cultivate their minds, by application to literary pursuits.

The COMMON SCHOOL ASSISTANT, a monthly publication of eight quarto pages, conducted by J. ORVILLE TAYLOR, and devoted to the improvement of Common Schools and the education of teachers, is published at No. 71 State-street, at fifty cents per annum, in advance.

POSTSCRIPT.

The demands upon us for information in regard to Stock, Implements, Italian (Siberian) Spring Wheat, Dutton Corn, and other seeds; and in regard to agricultural matters, have crowded upon us to such an extent—twenty having come to hand in the last forty-eight hours, requiring twenty letters in answer—that we have turned over to our friend BEMENT those upon stock, and to W. THORBURN, our honest seedsman, those upon implements and seeds generally. There is at present no spring wheat (Siberian) in market, though a supply is expected before the Hudson opens. The Dutton corn, already ordered, will be forwarded as soon as the navigation will permit. The queries upon agricultural matters will receive our best attention as early as our more pressing business will permit. We shall designate an agent, or agents, in the different states as soon as our returns will enable us to do it understandingly. In the mean time, we give the following:—

Thomas P. Jones, Patent Office, Washington, D. C.
J. Dille, Newark, Ohio.
G. M. Lewis, Scott's Ferry, Va.
Gen. B. Peyton, Richmond, Va.
Alex. Cowan, Annapolis, Md.
D. Shiffer, P. M. Shepherdstown, Pa.
W. F. Reddick, P. M. Sunbury, N.C.
John R. Bryant, Shawnee Run, Ky.
J. Blain, Marksborough, N. J.
R. S. D. Jones, Friendship, Md.
J. R. Palmer, Jackson. Mich.
B. R. Greene, Warwick, R. I.
S. Hinkle, New Market, Va.

RECEIPTS.—We have received payments for the number of subscribers indicated below, from the 20th Jan. to 20th Feb. inclusive. Numbers under ten not noticed.

POST-OFFICES.			POST-OFFICES.			POST-OFFICES.		
Abington,	Va.	33	Hadlyme,	Con.	11	Passumpsic,	Vt.	22
Benevola,	Ky.	11	Hamptonburgh,	Or.	11	Rose Mills,	Va.	11
Belleville,	Pa.	22	Hampstead,	Va.	11	Richmond,	Va.	11
Branchport,	Yates,	11	Keene,	N. H.	11	Somers,	Westches.	20
Black-Rock,	Erie,	24	Leonardstown,	Md.	11	Shawnee Run,	Ky.	11
Brownsville,	Pa.	11	Lenox,	Mass.	11	Sandy Spring,	Md.	11
Brinkleyville,	N. C.	10	Lewisburgh,	Pa.	11	Skaneateles,	On.	11
Bristol,	Con.	15	Lima,	Liv.	22	St. Louis,	Mo.	22
Berlin,	Rens.	11	Leesville,	Scho.	11	Savage,	Md.	11
Brooklyn,	Mich.	11	Meadville,	Pa.	11	Same Creek,	Md.	22
Church Hill,	Md.	13	Mattox Bridge,	Va.	11	Somerville,	N. J.	13
Centerville,	Md.	11	Murfreesboro',	Ten.	22	Shrewsbury,	N. J.	11
Chaptico,	Md.	11	Middletown,	Va.	22	Scott's Ferry,	Va.	22
Chestertown,	Md.	11	Milton,	Del.	11	Sublett's tavern,	Va.	11
Cheshire,	Con.	11	Madison,	N. J.	11	Sculltown,	N. J.	11
Castleton,	Vt.	11	Marksboro,	N. J.	33	Sunbury,	N. C.	11
Cassville,	Ono.	11	New Store,	Va.	11	Shepherdstown,	Pa.	22
Coxsackie,	Greene,	11	New Milford,	Con.	15	Trumansburgh,	Tom.	33
Danville,	Pa.	22	New-York,		20	Taneytown,	Md.	11
Deckertown,	N. J.	11	Newmarket,	Va.	22	Union,	Vt.	11
Duanesburgh,	Schen.	36	Newbern,	N. C.	14	Uniontown,	Ohio,	13
Erwin,	Steu.	11	Newark,	Ohio,	11	Windham,	Con.	15
Ellery,	Chaut.	11	Oakhill,	Greene,	11	West Bloomfield,	Ont.	17
Frederick,	Del.	11	Oxford,	Chen.	30	Wilton,	Con.	11
Friendship,	Md.	35	Ogden,	Mon.	33	Warwick,	Or.	11
Fishkill,	Dutch.	22	Ovid,	Sen.	22	West Rutland,	Vt.	12
Great Mills,	Md.	11	Pr. Edward c. h.	Va.	11	Westport,	Ky.	11
Greenwich,	N. J.	44	Port Tobacco,	Md.	11	Warwick,	R. I.	22
Govenstown,	Md.	22	Port Deposite,	Md.	11	Warsaw,	Gen.	50
Garysville,	Va.	11	Phelps,	Ont.	11	Yorktown,	Westch.	11

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

VOL. IV. ALBANY, APRIL, 1837.—(67 STATE-STREET.) No. 2.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.

J. BUEL, *Conductor.*

TERMS.—FIFTY CENTS PER ANNUM, TO BE PAID IN ADVANCE.

Special Agents.—JUDAH DOBSON, Philadelphia—Messrs. HOVEY, Boston—ISRAEL PAST & Co. Booksellers, 88 Bowery, New-York. ALEXANDER WALSH, Lansingburgh, gratuitous agent. Any gentlemen who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

☞ We should do injustice to our feelings, did we not make a grateful tender of our thanks for the very liberal patronage which has flown in upon us during the last month, as evidenced by the table of receipts inserted on our last page. Although complimentary to ourselves and contributors, we particularly rejoice in it, as affording evidence of the awakened zeal of our farmers for the improvement of the soil and of the mind.

HINTS IN REGARD TO THE CORN CROP.

The experience of the last two years has been sufficient to admonish us, that without due precaution, our crops of Indian corn will not pay for the labor bestowed on the culture; and yet, that where due attention has been paid to soil, manure, seed and harvesting, the return has been bountiful, notwithstanding bad seasons. Having been uniformly successful, in the culture of this crop, we feel justified in repeating some leading directions for its management.

Soil.—It is in vain to attempt to raise Indian corn, in this latitude, in seasons like the two last, upon stiff clays, or upon thin soils of a looser quality reposing upon a clay or hardpan subsoil, or without manuring for the crop; for although the plants will *grow*, the product will not repay the expense of culture, unless they produce a *good crop;* and it costs but little more to take care of a good than of a poor crop. The first are not adapted to the crop at any season. On thin soils, having a level surface, the rains settle and remain upon the subsoil, where the roots penetrate for food, and cause a cool temperature in the early part of the season, when the plants stand most in need of warmth. If soils of either of the above kinds are employed, the land should be thrown into ridges, ten or twelve feet broad, in the direction of the slope of the field. But sandy and gravelly lands, and light loams, are decidedly best for corn. The soil must be dry.

Preparation.—A young clover ley, one or two years old, is the best preparation for corn. No grass ley should be cross-ploughed for this crop. If the sod is tender, and the texture of the soil light, the ploughing and harrowing should immediately precede the planting. If the sod is old and tough, the ground should be ploughed the preceding autumn, and harrowed, and harrowed again, on the eve of planting. The furrow slice should not be laid flat, as in this case the water, if in excess, reposes upon the surface, but lapped, so that each furrow forms a sort of under-drain, for the surplus water to pass off. The plough should be set, where the soil will admit of it, to turn a furrow six inches deep and eight or nine wide; the work should be well done, no balks made, and the manure and grass completely buried, though an extra hand should be required. The *whole* ground should be turned over, that it may be broken and rendered pervious to the tender roots of the young plants. To *cut and cover* will not answer, as it breaks up and pulverizes but half of the soil.

Manure.—Unfermented stable and yard manure is decidedly preferable, if spread broadcast, as it always should be, and thoroughly buried with the plough. It keeps the soil open, and permeable to heat, air and moisture, the agents of nutrition; it imparts warmth to the soil while undergoing the process of fermentation, and it affords the best food for the crop. This we know is downright heresy to some; but all we ask of these sceptics is, that they will make the experiment, even on half an acre, and credit their own senses in the result. We mean this hint particularly for our friends in Otsego, Oneida and Madison, whose practice of *yarding their dung in summer* has heretofore excited our notice and our wonder. Manure cannot be applied to any crop so profitably as to this, and should always be used upon it.

Variety.—The twelve rowed corn, called the Dutton corn, is the earliest for field culture, that we know of, and we think it the best. We have raised it sixteen years, and the crop has never been injured by the early frosts. It has been widely disseminated, and seed, we presume, may be obtained in almost every county in the northern states.

Preparation of seed.—Our practice is to turn upon the seed the evening before planting, water nearly in a boiling state. This thoroughly saturates the seed, induces an incipient germination, and causes the corn to sprout quick. The next morning we take half a pint of tar for half a bushel of seed, put it into an iron vessel with water, and heat it till the tar is dissolved, and the liquid becomes tar water. It is then turned upon the seed and well stirred. It adheres to the grain, and gives it a thin transparent coating. The tar serves a double purpose; it prevents an excess of moisture entering and rotting the seed, if the weather or soil are cold and wet, and it preserves it from the depredations of birds, &c. which prey upon it. After the seed is taken from the steep, where we never leave it more than 15 hours, as much ground gypsum is mixed with it as will adhere to the kernels. The gypsum prevents the kernels adhering to each other, and favors the after growth of the crop. Ashes or lime may be substituted for gypsum. The seed should be planted while it is moist, and immediately covered. It should not be long exposed to the sun.

Distance in planting.—This must depend upon the variety cultivated, and the richness of the soil. The Dutton is of dwarf growth, and upon well manured land may be planted at three feet each way, or three by two and a half. Southern corn, and some old varieties in the north, grow taller, and require more room. As a certain quantum of food is required to bring each stock to maturity, poorly manured ground cannot feed so many stocks as that which is highly manured.

Quantity of seed and covering.—From using too little seed, and a recklessness in covering it, many corn fields are deficient one half of what ought to grow upon them. We drop six to eight kernels in a hill, and take special care to have it covered only with fine mould. If dung, sods, sticks or stones are placed upon the hill, it partially or wholly prevents the plants coming. If burried too deep, the seed may rot before the soil is warm enough to induce germination; if too shallow, it may lack moisture. These are little matters, though they have a great influence upon the profits of the crop. The extra expense that would be incurred to do these things perfect, might be four quarts of seed and one day's labor to the acre—and the advantages would often be the doubling of the crop. Two inches is a sufficient covering, if the hill is trodden upon, as it should be, by the planter, to compress the earth and preserve its moisture.

After culture.—In this the plough should not be used if the corn harrow and cultivator can be had, and if used, should not be suffered to penetrate the soil more than two or three inches. The plough tears the roots, turns up and wastes the manure, and increases the injuries of drought. The main object is to extirpate weeds, and to keep the *surface* mellow and open, that the heat, air and moisture may exert the better their kind influences upon the vegetable matter in the soil, in converting it into nutriment for the crop. The oftener the cultivator is made to pass between the rows, therefore, the better; though ordinarily but two dressings are given to the crop. At the first dressing with the hand hoe, the plants are reduced to four, or three, in a hill, the surface is broken among the plants, the weeds carefully extirpated, and a little fresh mould gathered to the hill. At the second dressing, a like process is observed, taking care that the earthing shall not exceed one inch and a half, that the hill be broad and flat, and that the earth for this purpose be not taken from one place, but gathered from the surface between the rows, where it has been loosened by the cultivator.

Harvesting.—The crop should be cut up at the ground as soon as the grain is glazed, or as soon as it will do to top, and, without being laid on the ground, set immediately in stooks. There are four substantial reasons for adopting this mode of harvesting. It secures the crop from the destructive effects of frost; it quadruples the value of the fodder; it clears the ground early for a fall crop, and it saves labor in harvesting; and, we may add a fifth, it makes a better crop of grain, under any contingency, than when it is topped in the old way. We are confident of this last fact.—The grain continues to profit by the elaborated sap in the cut stocks, while it does not profit by the unelaborated sap, below the ear, in the topped corn.

Husking and cribbing.—The ears should be gathered from the stocks, and the latter stacked, as soon as they have become sufficiently dry and cured, as unnecessary exposure to the weather is prejudicial to both the grain and the forage. From two to three weeks generally suffices to effect these objects. The corn may be picked off and carried to the barn, and it should be husked within 24 or 36 hours thereafter, and before the least heat is perceptible in the pile, and the stocks bound and placed in small stacks, so as to expose all the butts, which have become saturated with moisture by standing on the ground, to the drying influence of the sun and winds—and the stacks topped, or covered with straw, so as to shed rain. After a fortnight or so, they may be carried, in a dry state, to the barn. When picking the corn from the stalks, the best seed ears should be selected, and immediately braided, and hung in an airy loft. The corn should be exposed, after being husked, upon the barn floor, to the drying influence of the winds, and it may require to be turned over and stirred, till the *cob* is thoroughly dried. If this is wet, when cribbed, fermentation may ensue, or a frost may follow, sufficient to congeal the moisture in the cob, either of which will impair the quality of the grain, and destroy its germinating principle.

In sorting the corn, we make three parcels, viz. sound grain for the crib, pig corn, embracing the ripened but defective ears, and the truly soft and smutty ears, which are not husked, but thrown by for immediate use. The silk and husks are carefully separated from the two first parcels, as they imbibe moisture, induce mouldiness, and afford building materials for mice. We also separate the grainless tips and stems of that which we place in cribs, for the like reasons, and to preserve the grain in a sound bright condition.

The forage from the corn crop, when saved in the manner we have directed, is an excellent fodder for neat cattle, if cut for feeding out. We have used it in this way, exclusive of hay, for two years, and find it answers all the purposes of hay. Our practice is to cut a quantity, to mix with it bran, or roots, cut up, when we have them, and to sprinkle the mass with brine, and to feed in mangers.

THE GARDEN

Will now begin to require the attentive care of those who mean to profit by its riches, or derive pleasure from its floral beauties and fragrance.

The first object should be, to render the garden soil dry and rich. The first may be effected, where necessary, by under-drains, the second by manures. The next, to have the soil well prepared by digging, or thorough ploughing, for the garden crops, and always to plant, sow and transplant upon the fresh stirred soil. In the culture, three cardinal rules should be observed: 1. Never suffer plants to grow too close, so as to prevent a full development of growth; 2. Never suffer weeds to rob them of their food; and 3. Keep the surface of the soil loose, that it may be permeable to the influence of the sun and atmosphere. Having spoken in our last of the modes of propagating, planting and pruning trees and shrubs, we will now make a few remarks upon the culture of culinary vegetables and herbaceous plants.

Early crops.—About the 15th to 25th April, in this latitude, is a proper time to sow in a *hot-bed,* for the construction and management of which see last vol. seeds of plants wanted for early use, and of such as require to be started early to bring them to due maturity; of the first may be mentioned lettuces, early cabbage, cress, &c. and of the latter, peppers, tomatos, egg plants, &c.—and if flowers are to be cultivated, astors, balsams, marygolds, coxcombs, xeranthemums, amaranthus, &c. may be added. All these may be sown in a frame of three sashes, sufficient for an ordinary garden. Cucumbers require a distinct frame. As soon as the season is sufficiently advanced, the plants of lettuce, pepper, &c. may be transferred from the hot-bed to the open ground. Where no hot-bed is provided, the hardier kinds of these seeds may be sown, together with cellery, in a warm protected border, during the period already indicated, and the tenderer ones early in May. There may also be sown in the open ground, as soon as the soil is sufficiently dry and warm, spinach, early beets, peas, radishes, a few carrots, Windsor beans; and in the latter part of the month, kidney beans and potatoes, for early use. The main onion crop may be put in about the 25th April, and the main crop of beets, carrots and parsnips the first fifteen days in May. It is desirable that these seeds should not be deposited until the temperature of the soil is such as to induce a prompt germination.

In *planting,* the rule we have laid down, will require the drills for small seeds to be at least twelve inches apart, and that the plants in the drills be thinned as soon as they are out of danger. Drills are made with a hoe, a stick, a drill-barrow, and with various contrivances of the gardener.

In *covering,* the great point is to give them no more earth than is required to secure to them a proper degree of moisture until their roots have got a firm hold of the soil—for heat and air are as essential to growth as moisture is. For this reason the earth is generally pressed upon small seeds, superficially buried, with a roller, hoe, or by other means, to prevent an excess of evaporation.

When early corn, planted the last of April, breaks the ground, which will seldom happen here before the 12th or 15th May, it shows a temperature in the soil suitable for the growth of cucumbers, melons and other vines, Lima beans, and all tender annual products, and this will be the best guide for planting them.

Of the perennials useful in the garden, *asparagus* may be classed as among the most valuable. The seed may be sown in drills, on a well prepared bed of earth, like beets, and at the same time. If well taken care of the grass will be fit to cut for the table the third year, and the bed will last fifteen or twenty years. *Rhubarb,* or the pie plant, comes next in usefulness. It furnishes an excellent material for tarts and pies for two or three months, and until garden fruits come in use, and its use is highly conducive to health. It is propagated by offsets, or by seed, which latter ripens in August, and may be then sown. A dozen plants, in good ground, will suffice for a family. It requires no care except in keeping down weeds. Its main leaves spring from the crown like those of the burdock. There is a giant variety, a hybrid, of very large growth, which does not produce seed.

Among the culinary and medicinal plants, easily cultivated, and always useful, may be named parsley, a biennial, summer savory, an annual, and thyme, balm, cammomile, mint, tansy, hyssop, rue, sage, smellage and wormwood, all perennials. A few plants of each of these will suffice. They may be planted in a border. They should be gathered for winter use when in bloom, and hung up to dry in the shade.

Biennial plants intended for seed, as cabbage, ruta baga, carrots, beets, onions, parsnips, &c. should be planted out this month, taking care not to plant out any two species of the same genus, or kinds that will *mix,* in the same enclosure. The cabbage will spoil the turnip, and vice versa; and all the species and varieties of the same family will mix and destroy the distinctive character of each other's seeds. As the plants advance in growth, they should be secured from falling by being tied to stakes, or by other efficient means.

The same rules apply to flowering as to other plants, in regard to sowing, transplanting, cultivating and seeding—with this difference, that flowers being here the main object, those will be multiplied, in a measure, in proportion to the diminished growth of the stock; that is, they will be increased by transplanting, in such species as will bear this operation. They must have room to flower well; and all plants having inferior flowers must be eradicated early, if we would secure good seed.

The tools employed in garden work may be the ordinary tools of the farm—such as a spade, rake, hoe, &c. but a garden line, an iron rake, a skim hoe, either the Dutch shove hoe, or the turnip draw hoe, figured at p. 50, vol. 1, of the Cultivator, and which may be made to any required breadth, may assist to give symmetry to the garden, and to abridge its labors.

We will repeat, that most plants, in order to develope their excellencies, require a clean rich soil, pulverent and dry—with room enough for their roots to gather food from below, and for their stems and branches to have the full benefit of the sun and air above ground.

In the cares of the garden and farm, let no one forget, at this season, to plant shade and ornamental trees about his house and court yard. They will add much to his personal comfort, much to the beauty of his mansion, and much to the intrinsic value of his estate.

ITALIAN AND SIBERIAN SPRING WHEAT.

There seems to be two kinds of spring wheat of great repute in Oneida county, the Italian and Siberian, which we have till now supposed to be identical, and which circumstance led us in our last to denominate the whole Siberian wheat. The kind noticed by Mr. Hathaway, is alledged to have come from Florence, and is called *Italian.* We have received a sample from Dr. Goodsell, of Utica, said to have come from Switzerland, which is denominated *Siberian.* So that although we supposed that there was but one Dromio, it turns out that we have a Dromio of Ephesus and a Dromio of Syracuse—a new wheat from Siberia and a new wheat from Italy. We have samples of both before us, and find there is a marked difference between the two. The Siberian is the largest berry, and the dullest color. The Italian the smallest and brightest grain.

The character of the Italian wheat has been already given by Mr. Hathaway. That of the Siberian we derive from Dr. Goodsell, of Utica. It is prolific, the Doctor's Siberian having given a third greater product than his common spring wheat; and one of his neighbors considers its product double. Mr. Tower, near Deanville, as we are advised by a gentleman from that place, raised 160 bushels on four acres last summer. It makes a heavy return in flour—Dr. Goodsell having obtained 50 lbs. 6 oz. from a bushel—2 lbs. 6 oz. above the standard of good winter wheat. It is believed it will escape the ravages of the grain worm, from the circumstance of its being a late variety—a gentleman from Rensselaerville, who has raised it, assuring us that it ripens very late.—Both kinds are in great demand, and have been purchased up at $3 per bushel. Our neighbor Thorburn, the seedsman, has procured a few bushels of the Italian, at an expense of about $4.50, and sells it at $5. We intend to try both kinds.

Brooks' Silk Spinner and Twister, deserves a further notice from our hands, because we think it ranks among the most useful improvements of the day, and is calculated greatly to facilitate our progress in the silk business. Let it be remembered, that very little instruction is required to qualify a woman to use it; that it is equally adapted to the fabrication of sewing silk, twist, or to a thread for any required fabric, and that it produces all these, as far as we can judge, in a perfect manner. Now the question is, what will it earn, in a silk family, or a silk neighborhood? For now-a-days, *profit* is the great desideratum. In this matter, we shall speak on the authority of the patentee, a very unassuming, intelligent, and, we believe, honest member of the society of Friends, or Quakers. He says it is a moderate day's work to spin and twist half a bushel of cocoons into sewing silk, and that the fair average product of these cocoons would be 175 skeins of sewing silk, worth now, at wholesale price, five cents the skein. The highest price of cocoons is $4 per bushel. Assuming these data, and basing our calculation upon five bushels of cocoons, which a family of girls may easily produce every year, let us see what would be the gain which would accrue to this family in five years, from the use of this machine.

The 25 bushels of cocoons would produce 8,750 skeins silk, worth five cents at wholesale,		$437 50
From which deduct the wages of a woman, 50 days, at 50 cents,	$25 00	
Add cost of machine,	35 00	
And it makes a total of		60 00
And leaves a profit of		$377 50
The highest price at which cocoons sell is $4, which would be, for the 25 bushels,		100 00
		$277 50

Which shows a profit, in buying and using this machine, over selling the cocoons, in the small quantity of 25 bushels, of $277.50. This would require the labor of a woman only ten days in a year, or 50 days in the five years. The remainder of the time, to any extent required, might be as profitably applied, in working up the cocoons of the neighborhood, of the town, or of the county; and the value of the machine would be yet but little impaired by these earnings! Every silk district should have one of Brooks' machines.

FARM ACCOUNTS.

The Dutch, celebrated as well for their prudence as their thrift, have a maxim, that "*no one is ever ruined who keeps good accounts.*" The maxim is so generally revered, that we find the manufacturer, the merchant, and the lawyer generally adhering to its suggestions, and keeping accurate accounts of their receipts and expenditures. Those in these employments who do fail, either neglect the precaution, or are reckless of the consequences of failure; for if they are conscious, as all should be, that they *live within their income,* a failure will seldom occur. The rule applies with equal force to the farmer. If he keeps an accurate account of his receipts and expenditures, he knows what are his resources—what the profit or loss of his business—at the close of every year;—he can graduate his family and other expenses accordingly, and if he cannot command success, he can merit it, by a course of industry and economy, which will never fail to secure him friends in time of need.

By keeping accounts, the farmer is able to ascertain the adaptation of his farm to particular crops, or kinds of stock; to determine upon the relative advantages of each, and to vary them according to circumstances. The keeping of accounts has a moral effect. It prevents procrastination, the "thief of time." The very consciousness that a man has to make entries of every thing that he does, keeps his attention alive as to what he is to do; and the act of making those entries, is the best possible training to produce active and pains-taking habits.

Keeping farm accounts is an incumbent duty to our children. It teaches them business habits—makes them acquainted with the nature and value of property, of various kinds—inculcates lessons of industry and prudence—and gives a value and a zest to the comforts and pleasures which are the reward of their personal care and industry.

We have met with no form which we deem suited to the condition of our farmers. But of such high importance do we consider the keeping of farm accounts, that we venture to recommend a model, sensible, however, of its imperfections, and would respectfully beg of gentlemen more competent than ourselves in the matter, to favor us with a better plan.

We will take for our illustration, a farm of 100 acres. Of this, a diagram or map is to be made, each subdivision numbered, and its contents, in acres, noted. The objects of keeping a journal may be one or all of the following:—

1. To ascertain the nett annual profits of the entire farm;
2. The profits of each crop, or field, or course of crops;
3. The profits of each species, or of the entire farm stock, and
4. The expenditures and income of the family.

The farm is charged with all expenditures made for its improvement and culture, including stock, labor, board, dung, taxes, new implements, interest on its estimated value, ten per cent for wear and tear on old implements and tools. And it may, in like manner, be credited with all its annual products, whether sold or consumed in the family—and with the increased value of its stock, improvements, &c.

If it is desired to know the profits of a field for a single year, or during a course of crops, the labor, dung, seed, &c. expended upon it, should be charged to it; and it should be credited with the products, whether grain, grass or pasture.

Where it is desired to know the profits upon stock generally, or upon a particular kind, this head may be charged with purchases and keep, and credited by sales of animals, increased value and products, as butter, cheese, wool, meat, &c. sold or consumed in the family.

The fourth object is one of interest to every prudent manager, who would observe the golden rule, *to live within his income.* A knowledge of one's actual income, and of the expenditures of his family are essential in every well ordered household. The family account should exhibit the total expenditures for the family, whether for food, clothing, pleasure, furniture, schooling, &c. and the labor of the family upon the farm, and the board of the workmen, and interest and dividends upon vested capital.

All these matters may be entered in a diary or journal, in a few minutes each day, and at the end of the year, posted under the four leading heads of *Farm*, *Crops*, *Stock* and *Family*, or the second and third may be subdivided into single fields and for the different kinds of stock. The footings will show the relative profits or loss under each head. Where the account is posted to the fields separately, the relative advantages of the different courses may be determined at the termination of the course. Minute details are not required. The total expense of putting in a crop may be comprised in one charge, harvesting and housing in another, and threshing and marketing in a third. The value of the total product of a field may also form one entry. The object is to enable the proprietor to come to some pretty accurate result.

We give the following as the forms of books which we have adopted. A quire of paper may be ruled to this or any other form by the farmer himself, and may be covered and stitched by the wife.

FORM OF A FARM JOURNAL.

1337	No. 1, Dr.	To 40 loads manure, at 8s.................	$40	00
May 15.	Stock, Cr.	By 10 lambs sold, at 12s.....	15	00
	Family, Dr	To 20 bushels wheat, at $2 per bushel, ...	40	00
	Farm, Dr.	To cash paid J. B. for 8 mo. labor, at $12,.....	96	00
Dec. 1..	No. 1, Cr.	By 200 bushels corn, sold at $1—stalks $15, ..	215	00
	Stock, Dr.	To summer keep of 12 cows, at 8s. per mo. 7 mo	84	00
	Family, Cr	By board of 4 laborers 6 mo. at $2 per week,..	208	00
	Farm, Cr..	By value of wheat from field No. 2,...........	304	00

FORM OF A FARM LEDGER.

Dr. Farm, *Cr.*

fo 30	To cash to A. B. for 6 mo			fo 12	By 5 tons hay, sold at $20	$100	00
	labor,.......... ..	$72	00	15	By 500 lbs. wool, sold at		00
32	To 2 tons plaster, at $6,	12	00		50 cents, ...	250	00
36	To an iron plough, ...	25	30	18	By profits on wheat, No.2	76	00
40	Cash paid for 20 shep, ..	60	00	20	Profits on rutabaga, No.6	134	00
46	To loss on corn crop, in			31	By increase in value of		
	No. 6, ...	12	75		stock, ...	150	00
47	To taxes paid on farm,..	7	25	35	By cash for 6 cows sold,	140	00

The above forms will serve to explain our views, and may be altered or improved to suit the taste or business of each individual.

The Tooth Ache.—A correspondent to the Montreal Herald, states, that after suffering excruciating pain from this ache, and having tried in vain to obtain relief,

"Betty told me a gentleman had been waiting sometime in the parlor, who said he would not detain me half a minute. He came—a friend I had not seen for years. He sympathized with me, while I briefly told how sadly I was afflicted.

"'My dear friend,' exclaimed he, 'I can cure you in ten minutes.'

"'How? how?' inquired I; 'do it in pity.'

"'Instantly,' said he,—'Betty, have you any alum?'

"'Yes.'

"'Bring it, and some common salt.'

"They were produced; my friend pulverized them, mixed them in equal quantities; then wet a small piece of cotton, causing the mixed powders to adhere, and placed it in my hollow tooth.—'There,' said he, 'if that does not cure you, I will forfeit my head. You may tell this in Gath, and publish it in Askalon; the remedy is infallible.' It was so. I experienced a sensation of coldness, on applying it, which gradually subsided, and with it, the torment of the tooth ache."

Easily tried.

Farming Implements.—It will have been seen, by the last Cultivator, that the State Agricultural Society have appointed a board of examiners, comprising men of science, and practical machinists and farmers, to meet semi-annually, to examine, and thoroughly to test, (and to give certificates of merit,) all farm implements and machinery which may be offered for their inspection. We are glad to learn, that the gentlemen designated will attend to the duties of their appointment, and that notice will shortly be given of the time and place of their first meeting. This measure, if properly carried out, and we feel confident that it will be, cannot fail of producing a highly salutary influence upon our agriculture, and upon the general interests of the state. It will give general confidence in implements and machines which are truly meritorious, and to multiply them upon our farms; while on the other hand, it will tend to prevent imposture, and to save great expenditures for inventions which are comparatively worthless.

A CALCULATION.

There are, by estimation, 250,000 improved farms in this state, upon three-fifths of which, we believe, it is the practice to *summer yard* manure; that is, to leave it in the yard to rot during the summer, by which one-half of its fertilizing properties are lost to the farm. It will not be considered extravagant to suppose, that the manure thus permitted to waste upon these 150,000 farms, will average ten loads to each. This would give an aggregate of one and a half millions of loads of manure which are annually summered in our farm-yards, and about our farm buildings. If the calculation of Davy is correct, that yard dung loses one half of its fertilizing properties by undergoing a complete fermentation in the yard, there is an absolute loss, from this reckless or ill-judged mode of managing dung, of 750,000 loads, worth, to a good farmer, one dollar a load. Let us now see what this last manure would produce, if applied to the corn and potatoe crop, in the spring, instead of being suffered to lay till autumn in the yard; for no one will pretend that dung wastes more in the soil than it does upon the surface of the ground, exposed to the weather. Von Thaer, after a series of experiments, has stated, that the fertility of an ordinary soil is augmented 50 per cent. by the application of twenty loads of dung to the acre. Although we believe this estimate will hold good in regard to the corn and potato crops, we will, in our calculation, consider the augmentation only one-third. The 750,000 loads of lost dung would manure 37,500 acres of corn land, at the rate of 20 loads to the acre. Assuming 30 bushels per acre as the ordinary crop, the manure then, by our rule, which is certainly graduated low, would have added ten bushels to each of the 37,500 acres, or in other words, would have produced 375,000 bushels of corn, worth, now, nearly half a million of dollars. But if we assume, what we believe to be within the bounds of truth, that every load of long manure, under good management, will augment the product more than one bushel, the gain to the state, by a general adoption of the mode recommended, of fermenting all our long manure in the corn field, would amount to 750,000 bushels, which, at present prices, would be worth nearly a million of dollars.

This is but one branch of improvement of which our husbandry is susceptible. Thorough draining, a judicious system of alternating crops, the root culture, &c. may each be made to augment our crops to a greater extent than the improvement we have suggested. Every article of our produce has been more or less enhanced by the failure of our corn crop, and every class in community are paying *smart-money* for the neglect and contumely with which the interests of agriculture have been treated in our legislative halls. Days, weeks and months are spent in unprofitable debate, upon trivial questions of order, the division of a town, or the incorporation of a bank, in which the state has but a modicum of interest, while not a day, or an hour's time, can be spared to discuss the great business of agriculture, the noble base which supports the whole fabric of society. Millions have been expended to endow schools of literature, but not a cent to endow schools of labor. Though the lion now sleeps, he may be provoked too far.

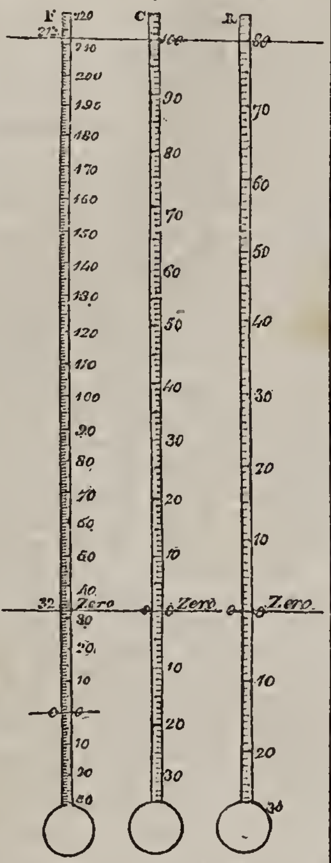
But we are straying from our object, which was to show to the farmer, the importance of applying his long manure to his corn and potatoe crops, and to urge him, by the strongest considerations of interest, to do it THIS SPRING.

Superior Oats—We have two varieties of oats on hand, of superior quality, both weighing over 40 pounds the bushel, raised in this state. One variety is from Dr. Goodsell, of Utica, Oneida, and is the progeny of a single stool, of uncommon appearance, found growing in a barley field. The other kind was raised by Col. F. Lansing, of Watervliet, and has no distinctive name. Since we have a legal standard of weight for this grain, its character is evidently improving, and it has become a matter of moment for farmers to cultivate only the *heaviest* kinds.

Remember this.—Unfermented vegetable and animal matters, including green sward, green crops and long manure, after being buried by the plough, should never be exposed to the sun and winds by cross-ploughing, until they have become perfectly rotten. The gaseous matters which dung gives off while undergoing fermentation, always rise, because they are lighter than atmospheric air. They enrich the soil, and afford food to plants, because they have already formed a necessary part of plants. Hence, if fermentation takes place *on* the surface, these gaseous matters are scattered and lost; if *in* the soil, the earths and moisture retain them there, and the plants feed upon them.

THERMOMETERS.

Fig. 4.



Fahrenheit's is used in Great Britain and in the United States. In it, the range between the freezing and boiling points of water is divided into 180 degrees; and as the greatest possible degree of cold was supposed to be that of producing snow with muriate of soda, it was made the zero, hence the freezing point became 32°, and the boiling point 212°.

The Centrigade thermometer places the zero at the freezing point, and divides the range between it and the boiling point, into 100°. This has long been used in Sweden, under the title of Celsius' thermometer.

Reaumur's thermometer is generally used in France. It divides the space between freezing and boiling of water into 80°, and places the zero at the freezing point.

As reference is often made to Reaumur's scale, and sometimes to the Centrigade, in foreign authorities, the reader is often puzzled to determine the corresponding degree upon Fahrenheit's scale. To aid in this, and as a matter of easy reference, we subjoin the three scales of Fahrenheit, Reaumur and Celsius.

To the young and others not acquainted with the thermometer, it may be well to remark, that it consists of a graduated glass tube, containing quicksilver, which ascends in the tube by the expansive force of heat; that when water freezes, the quicksilver rises to 32° in Fahrenheit's scale; and that when water boils, the mercury rises to 212°.

The first on the left of the cut, is Fahrenheit's, the centre the Centrigade, and that on the right, Reaumur's scale.

FARM IMPLEMENTS.

The introduction of labor-saving farm implements is so essential to agricultural improvement, and the inquiries for them of us are so numerous, that we subjoin a list of several now on hand by Mr. Thorburn, Seedsman, with their prices. Orders may be either forwarded to Mr. T. directly, or, when more convenient, through the Conductor of the Cultivator.

Straw Cutters—Green's* and the Columbian,* each $30.

Cultivators–Bement's* $10 to $15; Van Bergen's* $13; Craig's* $6.50.

Drill-Barrows—Robbins'* $15; Bement's* $8 to $10; Merchant's* $3.

Ploughs—Wiley & Conklin's, $4.50 to $8.

Harrows—Craig's* angular, $13.50 to $15.50 the pair.

Horse Rake—Pudney's revolving* $6.

Corn Shellers—Adriance's cast iron $15; Gregory's double $16.

Brooks' *Silk Spinner and Twister,** for families, $35.

Allen's *Threshing Machine** $45; with horse power from 75 to $100.

Melish's *Vegetable Root Cutter*, $10.

Italian Spring Wheat $5 per bushel.

He receives orders for Concklin's *Press Harrow,** price $100, packed for transportation, and for Wilson's *Mowing Machine.**

Those with this * mark have been figured and described in the Cultivator.

PUBLIC ADVANTAGES TO BE DERIVED FROM THE ESTABLISHMENT OF AN AGRICULTURAL SCHOOL.

We make the following extract from the Farmers' Register, to advertise the public of the kinds of instruction which it is intended shall be given in the contemplated School of Agriculture, and to show some of the public benefits which are expected to result from its establishment. The article, it will be perceived, is from the pen of our esteemed friend, Dr. J. P. Beekman, of Kinderhook.

" To develope, however, more fully, what we conceive will be its probable practical effects upon the future increase of our agricultural products, I must acquaint you with what is intended to be taught in this institution. First, *mathematics*--the science which contemplates whatever is capable of being numbered and measured, so far as it leads to a correct knowledge of practical mechanics, the application of the principles of power, and land mensuration. Second, *chemistry*—the science which enables us to discover the peculiar properties of all natural bodies, either in their simple or compound state, so that we can analyze the different kinds of soils, ascertain wherein they differ, and, if possible, in what the principles of fertility consist, and what must be added, or taken away, to make barren or unpropitious land more productive. The doctrine of manures cannot be understood without a knowledge of chemistry; and it is a subject so extensive in its application to farming purposes, that it must become the A B C of the farmer's education. *Geology*, and, if necessary, *mineralogy*, so as to discriminate between the different kinds of substances the earth is composed of, that we may have a correct knowledge, not only of what the surface of the soil consists, but what is buried beneath it. *Botany*—the science of plants, or that part of natural history that relates to vegetables, that we may ascertain their different uses, discriminate the exhausting plants from those which are not so much so—the locations most favorable to their growth—the seasons for their production and reproduction—their laws of generation—the alternation that ought to be observed for the best development of their powers—so that whatever plant we cultivate, it will be the most perfect and valuable of its kind. *Entomology*, or more properly, *grubology*—to ascertain the kind, nature and variety of insects that prey upon, destroy or injure our corn, wheat, turnips, fruit, &c. with a view to their protection or destruction.

" The principles of industry are to be instilled, and the most regular and systematic manner of farming practised. A correct moral deportment inculcated both by example and precept—early rising and cleanliness promoted—in short, the practice of every virtue insisted upon and most sedulously maintained, whilst idleness and vice must receive no countenance. So, that when young men graduate from this institution, their minds shall be well stored with all the information that relates to the peculiar business of farming, their hands taught to give efficiency to the knowledge they have acquired, and their habits formed to give stability to their characters, and make them most useful members of society. In enumerating the studies to be pursued, I may not have been sufficiently select or particular—my object is to give only a general outline of the plan, which, when hereafter put in practice, will be more carefully and systematically arranged.

" Suppose such an institution to contain two hundred students, and a course of studies to last three years. It would send each year near seventy young men, so educated, into the different sections of the state. Their knowledge of theoretical and practical farming would be generally diffused; and continue this number for many successive years, it would give thousands of the best farmers, scattering them through every portion of the state. And here let me ask, who is so much of a skeptic as not to believe that agricultural knowledge would not be increased by so great an accession, and in consequence, agricultural products be prodigiously multiplied? But this is not all; our school would not only send her missionaries of intelligence and industry through the state, but all her operations, so far as competent professors could discharge their duty of instructing or experimenting—of collecting, comparing and examining—of all that was most familiar or rare—ornamental, uscsul or profitable, in each of their peculiar departments—in a short time we would have a farm and collection, which would vie in extent and appearance, and much exceed in usefulness, the far-famed gardens of London or Paris.

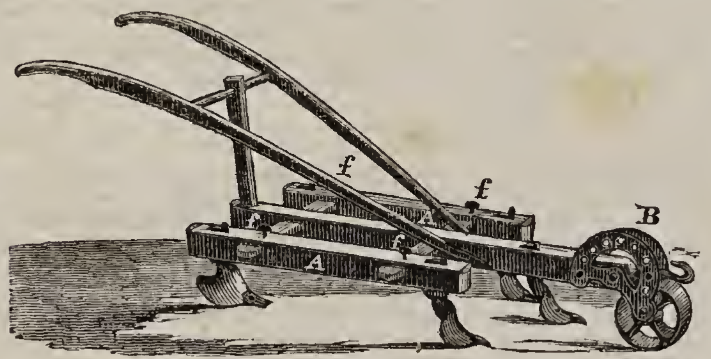
" Probably, at no time in the history of our state, could an agricultural school be founded under better auspices for ultimate success, than at present. By the establishment of agricultural journals, a taste for that kind of reading has been created; our citizens are alive to farther improvements, for they have heretofore felt the want of any. The efforts made and making to give a more thorough school education to our population—the ability of our citizens to contribute whatever may be required to carry the object into effect—the easy transmission of produce through every portion of our state, by our rivers, roads, canals and rail-ways—the facility of communication with New-York, one of the best markets in the world—all are so many aids to the successful completion of the plan.

" Should this school go into operation, and carry out the great principles of its founders, the time will, *must* come, when every citizen will be proud of it as a state institution; when those who have been its friends will gladly come forward and claim the honors to which they will be entitled, and the present state authorities will take a pride to date its commencement as coeval with their administration of power; for, besides being a test farm systematically managed, its manufacture and collection of the various farm implements—its specimens of geology, mineralogy and botany—the exhibition of its animals—the order and regularity of all its operations in husbandry—the circulation among our farmers of useful intelligence collected there, either from practice or experiment—the aids it will give to our agricultural journals—and, above all, the young men it will yearly send out to every portion of our country, to vivify by their intelligence, and fructify by their industry, whatever place they settle in, will be so many claims to popular favor—for they will be constant and living evidences of its great usefulness.

I remain your friend, &c. J. P. Beekman.

Kinderhook, Jan. 26, 1837."

VAN BERGEN'S CULTIVATOR.—Fig. 5.



The above is a figure of a Cultivator invented by A. Van Bergen, Esq. and for sale at Thorburn's Agricultural Warehouse.—It consists of three bulls, (A. A.) connected by two cross slats, fastened in the outside pieces by thumb screws, (f. f.) and which admit of the machine being contracted or expanded at pleasure. The three forward shares are triangular; the two behind are moulding shares, and, by shifting, may be made to turn the earth to or from the plants, at pleasure. It is drawn by a horse, and can be regulated as to depth by the bridle (B.) It may be used among all rowed crops.

Our national motto once was, "*millions for defence, but not a cent for tribute.*" A correspondent suggests the following parody, as suited to the action of the legislature upon the surplus fund:—"*Millions for the professions, but not a cent for the arts of productive labor.*"

If it is true, as is alleged, that some farmers in our legislature, are averse to giving any public monies to aid agricultural improvement, we do not hesitate to say the sentiment is unworthy of them; and that enlightened men will be apt to charge them with either ignorance or jealousy—ignorance of the value of rural improvement, and of their duty—or jealousy lest others may be enabled to surpass them—and their own profits and popularity be consequently lessened.

Hollow Wooden Rollers may be constructed by most farmers, at a very moderate expense for iron work. Take three cast off fore wagon or other small wheels; place two of them six feet apart, and the other in the centre; fix an iron axle through the naves of each, so as to connect them together, and serve to draw by; upon these, strong planks, cut very narrow, and bevelled at the edges, are to be firmly nailed lengthwise, until the roller is completely covered. It may then be mounted in the usual manner. If additional weight is required, as will generally be the case, it should be hung on the axle within the hollow. The draft of a roller is lessened by increasing its diameter: for it has been proved, that the same strength which is required to draw a roller of half a ton weight, over a height of two inches, when the diameter of the cylynder is one foot, will suffice to draw rollers of 15 and 18½ cwt. when their diameters are respectively two and three feet.

Italian Rye Grass.—S. J. Bayard, of Seneca, advises that his Italian Rye Grass promises to stand the winter well. A small patch in our grounds, last winter, also did well. This grass is adapted for early spring feed, and should our climate not prove too severe, will be a valuable acquisition to our husbandry. Mr. B. asks what variety of the pea is best for field culture? We answer, the marrowfat, if designed for market.

TILLAGE HUSBANDRY.

WHEAT.

Soil.—Good wheat cannot be grown upon a soil which does not contain both clay and carbonate of lime. Those denominated wheat soils by Von Thaer, contain at least 40 per cent of the former, and two per cent of the latter, though 50 or 70 of clay, and 4 to 6 of lime, are found in the best wheat lands. Heavy loams and stiff clays, with a due proportion of carbonate of lime and *humus*, or vegetable mould, give the best grain and the best crops.

Cultivation.—The writers upon British Husbandry recommend a naked fallow, or, where the land is of a light nature, to sow upon one ploughing after a clover ley. We shall ere long show, by the practice of eminent farmers whom we intend to quote, that the naked fallow, even upon stiff clays, may be dispensed with, with great advantage to farm profits. When it is intended to sow upon a clover ley, it is recommended to plough a month before the time of sowing, that some decomposition of the sod may take place, and that the land may have time to settle. Whether these advantages will counterbalance the benefit of sowing upon the fresh turned soil, will depend upon the season, or humidity of the climate. If the season is dry, and continues so, the advantages of the fresh ploughed soil are likely to be superior. A second ploughing, on a clover ley, is not only considered useless, but prejudicial; as it not only wastes the fertilizing properties of the sward, but it impairs the compactness of light soils, upon which clover is principally grown, and thus renders them less adequate to the production of a strong and healthy crop of wheat—compactness of the soil being a material requisite to the favorable growth of this grain. To produce this, it is not uncommon, on dry soils, and in dry weather, to turn sheep upon the young wheat, both before the frosts in the fall, and in the spring. Machines are also employed to compress the soil, constructed for this special purpose.

Manure.—The propriety of applying barn-yard manure to the wheat crop, though it may have undergone partial fermentation, and be applied on a naked fallow, is seriously questioned. "Experience has shown, that its application is very generally rather productive of an increase of straw than of corn; that the crop is thus subject to be lodged; and the wheat has been found inferior in weight, as well as more subject to smut, than when it has been avoided." It has been found more beneficial to apply the manure to a hoed or fallow crop which precedes the wheat. And it is urged, that where naked fallows are inevitable, and yard manure is absolutely required to ensure a crop, it should be previously mixed with refuse earth, as the scrapings of roads and ditches, to form it into a compost. We are rather inclined to favor the practice, upon stiff clays, and when the manure has rotted, of applying it after the last ploughing, and to harrow it in with the seed. The manure has then parted with its volatile properties, and its enriching qualities consist in fine carbonaceous matter, which the rains carry to the roots of plants; it tends to ameliorate a stiff clay, and serves to preserve the young grain from the injurious effects of frost.—As wheat abounds more in gluten, a substance analagous to animal matter, and affording nitrogen, than most other plants, it has been supposed that animal manures, as fish, oils, bone dust, horn, and urine, would be peculiarly beneficial to wheat grounds, and several experiments seem to warrant the conclusion. Lime is also often beneficial, but we are admonished to be cautious in its application; "for, if applied in a caustic state, it acts so powerfully as a stimulant, that if the land be not supported by an aquivalent application of putrescent manure, it will speedily be exhausted. If mixed in composts of dung, or other putrescent matter, it also prevents their fermentation, (?) and it should, therefore, never be laid upon lands in which those manures are not already decomposed; but it materially assists in the destruction of weeds and insects, and, therefore may be employed with manifest advantage when discreetly used. Mild lime, or lime in an effete state, is, on the contrary, of a totally opposite character; may be used with perfect safety in the formation of composts, and is not injurious when laid upon the land after the application of dung. It also binds sands and gravels, while it opens clays. In whichever state, whether effete or caustic, the lime be applied to a wheat fallow, it should, however, be completely combined with the surface soil previous to the sowing of the seed."—*British Husbandry.* It is to be borne in mind, that the English practice, to which the preceding remarks refer, is to apply from 200 to 400 bushels of lime at a dressing; and it is probable that the course recommended by M. Puvis, of applying ten bushels annually to the acre, would not be attended with the evil consequences above apprehended. Marl, so far as it contains carbonate of lime, affords all the advantages of mild or effete lime.

The time of sowing.—It is said that strong lands should be sown earlier than light lands; and that late sown wheats are most apt to become mildewed. The particular time must vary so much, in the different states where the Cultivator circulates, that any directions of ours upon this subject would have but a local application.

" *The grain may be sown* to the depth of two or three inches upon a clay soil; and upon land which is more dry and porous, even at four; for it will thus obtain a firmer hold of the earth, and will be more out of the reach of that extreme drought to which those soils are frequently exposed. It may, therefore, on such land, be safely put in upon a superficial ploughing, when not sown upon a clover ley. These are, however, the extreme depths. On every soil, the nature of the land, as well as its condition, should also be well understood, before the depth can be properly determined; for if it be a heavy wet clay, the seed should be sown proportionately nearer to the surface, than if it consists of a friable loam; and if it has been brought into complete order by the operation of a summer fallow, it will necessarily be in a state of openness which will allow of the seed being placed deeper."—*British Husbandry.*

The spring tillage of winter wheat is effected by the harrow and roller. When the crop is root-fallen the roller is alone employed, to close the fissures, and press the earth to the plants. But on strong adhesive clays, which become hide-bound after a wet winter, the harrow, of a weight adapted to the soil, is employed.—Though the practice is not general in Great Britain, and is but seldom resorted to here, it is universal in many parts of Germany and Poland. "There," says the writer of British Husbandry, who mananaged a farm three years in Germany, "on the first return of fine weather, the harrows are immediately passed freely over the wheat; so freely, indeed, that the whole field wears the appearance of having been newly sown, for the plants appear buried under the soil thus freshly stirred,and an ample top-dressing is thereby given to the crop. The crust formed upon the surface of the soil is thus broken, and the ground is rendered more pervious to the coronal root of the plants, which in a week or ten days spread and tiller with great strength. The operation is performed upon every kind of soil, but of course with harrows of a weight proportioned to the tenacity of the land, and not heavy enough to tear up many of the roots, though if a large quantity be not destroyed it is considered immaterial; and any farmer who omits harrowing is thought unpardonably negligent. It should be executed when the crop begins to re-vegetate, which necessarily depends on the climate and the state of the season. Attention is requisite to this; for if the work be done while the plants are in an inactive state, they may be rotted, and if when too forward, their growth might be checked." When the ground is to be stocked with clover, this affords a further inducement to use the harrow, as without it the grass seeds are very liable to fail. When the early spring growth is very luxuriant, from the richness of the soil, and the warmth of the season, the straw is liable to become weak and mildewed, and the grain to lodge. To prevent this, it is not uncommon to have it eaten down by sheep. It is also sometimes mown; in which case the work is carefully performed, at such a distance from the surface of the land as not to touch the heart of the plants.

Succession of crops.—"Universal experience has proved, that to sow wheat a second time upon the same land, without an intermediate crop, is exhausting the soil, and, if pursued for any length of time, eventually unprofitable to the farmer." "Clover has been called the 'mother of wheat,' and the ley is justly a favorite preparation of the crop; but it ought not to be repeated more than once in eight years, and it should only be sown when the ground is in such a state of cleanness, and so well manured [upon a previous crop] as to ensure the production of an abundant sward of grass; for, if this be not obtained, the wheat will invariably be found proportionably deficient. On good lands, which do not require a second year in grass, it will also be found most advisable to break it up after the first years' crops have been taken off; in which case the wheat may be sown, as we have already observed, upon a single ploughing, and thus a very considerable expense will be saved in the tillage of the ground."—*Br. Hus.*. The tilled crops which ought to precede wheat, and which should receive the long manure, are Indian corn, peas, potatoes, and all other root crops, and, upon a manured old grass ley, it may follow oats, or oats and peas. It should be preceded by no other small grain.

The culture of spring wheat is extending very much among us.—Although it gives ordinarily a less product than winter varieties, and though the grain be somewhat inferior, yet the crop is more certain. In the northern section of this state, in Vermont, Lower Canada, &c. it has almost superseded winter wheat, upon fresh cleared lands. Several new varieties have been introduced from Italy, the Black Sea, &c. which are highly spoken of, but of which we cannot speak from personal knowledge. More seed is required, of spring wheat, than of wheat sown in autumn. It was the opinion of Sir Joseph Banks, that bread made of the flour of spring wheat is more nutritiious than that from winter wheat, because spring wheat contains a larger quantity of gluten, or half-animalized matter; and also, that its intrinsic value, by weight, does not fall short of the value of winter wheat more than two per cent.

The straw of wheat is reckoned at double the weight of the grain; an acre producing 24 bushels of grain, of 60 lbs. may therefore be presumed to yield about 26 cwt.

The flour of wheat which is cut before it is quite ripe, is whiter than that which is allowed to come to maturity, and bears a higher price in the markets. The grain intended for the miller should therefore be reaped before it has reached its perfect growth; but that which is intended for seed should be allowed to stand until the last moment when it can be cut with safety—the corn is ground into meal of various degrees of fineness; and a bushel of 60 lbs. weight generally yields, when dressed, about the following quantities, namely,

Fine flour,	25½ lbs.
Househeld, do	22½
Pollards,	8
Bran,	3

Of the *diseases of wheat,* we will now only speak of smut, which we have no doubt is infectious, and that a sure means of destroying the infectious matter, and saving the crop from smut, is to soak the seed in brine, and then coat it with powdered caustic lime. The brine should be so strong as to buoy up an egg, should so cover the seed as to permit the light grain to float and be taken off. The seed may be left in the pickle six hours, then taken out, spread upon the barn floor, and the lime spread upon it, as much as will adhere to the kernels. Some consider it of service to apply the lime before it has cooled from the slaking process. After steeping, the seed should be sown within 24 hours. Some farmers substitute as a steep, stale urine for brine, in which case the seed should not be left in it more than three hours. Messrs. Culley, in Northumberland, G. Britain, grew yearly 400 to 600 acres of wheat, had only one instance of smut in a practice of forty years, and that was when the seed was not steeped. Upon Lord Chesterfield's farm, one half of a peck of very smutty wheat was sown without steeping, while the other half was steeped two hours in strong brine, and dashed with lime. Two thirds of the crop from the seed not steeped was smut, while that from the seed steeped and limed had not a smutty ear. Another experiment: A quart of very fine wheat free from smut, was thrice washed, and then put into a bag for two days in which there had been smutty grain, and a large proportion of this was smutty in the crop; but of twenty acres sown with the same grain, not inoculated, not one head was smutty. These proofs might be greatly multiplied, were it deemed necessary.

CORRESPONDENCE—CONDENSED.

The favors of correspondents have so multiplied upon our hands, that we find ourselves obliged to resort to this mode of abridging a portion of them, in order to give to our readers the usual variety of matter.

" *Shrewsbury, N. J. 2mo.* 1837.

"I have noticed with satisfaction, and solicitude for thy success, the earnest endeavors thou hast made, and thy friends, to establish an *agricultural and manual labor school,* but now fear, that for lack of enlarged views, and corresponding zeal in thy fellow-citizens, one will not be organized in time to place my son in it seasonably." R. W.

" *Marcellus, Feb.* 14, 1837.

" J. Buel, Esq.—It is matter of astonishment, that the Cultivator and other kindred publications are so little appreciated by our farming community, and that so many should still content themselves to place the stone in one end of the bag to balance the wheat in the other, and congratulate themselves in the happy decision—'my father did so, and 'tis the best way' It is, however, a matter of true congratulation, that one star after another is arising to enlighten our agricultural horizon, whose vivifying rays are felt, and will continue to be felt, on every field whose arable bosom is laid open to their genial influence; and that we may confidently hope that the time is not far distant, when on this subject men will no longer 'love darkness rather than light.' One reason, doubtless, why these agricultural periodicals are so lightly esteemed, and *book-farming* despised, is, as hinted above, the want of scientific knowledge among our farmers. As it was in the beginning, so now: 'the light shineth in darkness, and the darkness comprehendeth it not' This is 'darkness which may be felt.' Indeed it is felt, for we know neither how to determine the deficiencies of our soils, or to develope their resources. It is felt by individuals, by neighborhoods, by communities,—by the *state* and *nation:* nor may we expect the burden to be removed from our shoulders, but by the establishment and successful operation of *Schools*, such as have been recommended, under legislative patronage, in which scientific and agricultural instruction shall be blended. One such luminary in each of our counties, to which the whole *farming* community might turn their faces, would soon dispel the darkness, would shed meredian day, would guide our doubtful feet in the paths of rural and domestic abundance, would pour millions into our public treasury." T. A.

STALL FEEDING VS. YARDING.

W. H. who dates from New-York, in reply to our N. Jersey correspondent, on stall feeding, pithily remarks as follows:,

"Nature has laws that it is indispensably necessary to follow: yet in many cases much may be done by the aid of the skilful agriculturist to assist and improve. For instance, our corn grows, and is food to fatten our pork or beef; but a little help, if we may so speak, by grinding, makes it better; and if it is cooked, it is still better, at least for our pigs. Our friend says, if nature ties her bullocks by the neck, he will then admit the practice of tying to the stall to be correct. I would just say, by the same rule, if nature puts shoes upon our children's feet, I would also think that practice a good one. But our education, and knowledge of our own comfort and health, directs us to clothe our feet. And also, if we can judge from appearances, animals seek in winter the places where they are tied in their stalls, as most agreeable to their feelings. Brute animals are taught by instinct, and what they appear fond of generally proves beneficial, if they have it prudently given."

THE SAME.

M. Chapman, of Linwood farm, Rhinebeck, has also sent us a communication in reply to A. B. C. against stall feeding. He gives it as his opinion, matured by thirty years' experience, on both continents, that cattle will fatten with greater facility, and less expense, in the stall, than in the yard. He says stables should be well ventilated, and frequently cleaned and well littered; and that the cattle should be regularly fed and watered. In laying on fat, he thinks a moderate degree of warmth, so as to cause a slight perspiration, and a variety of feed, contribute essentially to this object. He stables all his cattle except the year olds. The manure is deposited in piles at the stable doors, and every few days removed to the fields where it is to be used for summer crops, and deposited in long heaps

HOW TO IMPROVE A POOR FARM.

Richard A. Leonard, of Middletown, N. J. has furnished us with an interesting account of his manner of improving a worn-out farm, and of the sale of its products the last year; and we regret, that from the great accumulation of matter on hand, we cannot give his letter in detail. We are obliged to content ourselves with a brief abstract of material facts.

Mr. Leonard came into possession of 90 acres of cultivated, but exhausted land, in May, 1833. In that year, the sale of its products amounted to $550.88; in 1834 the sales amounted to $718.05; in 1835 to $1,125.04; and in 1836, notwithstanding the unfavorable season, and the failure of most of his staple crops, to $1,166.13—thus more than doubling its products, by judicious management, in three years. His expense during the last year, for labor, dung and freight, amounted to $254.72—thus leaving him a nett profit on his farm, of $912.41—or more than $10 per acre per annum. We will quote Mr. L.'s statement of the means he adopted to thus double the fertility of his soil.

"My farm, says he, was in so low a condition that it would not produce more than ten bushels of rye, or twenty of corn per acre; and as I had no other income but what I could make upon this poor farm, I set about farming in earnest. I found it was in vain to attempt improvement without manure; so I contrived to get about 400 loads a year, 300 of which I made in the following manner. I have marl, though of very inferior quality. I cart about 100 loads of this into my barn yard, and by yarding my cattle upon it through the season, contrive to increase it to 200 loads. I also cart about 50 loads to my hog pen, on which I keep my hogs the year round. In this way I get 100 loads more, which is excellent for potatoes, corn, &c. and as my farm is situate near the bay, I obtain from New-York, annually, from 50 to 75 loads of the best stable dung, at about one dollar per load on delivery, and by mixing it with earth, &c. make up the 400 loads. By this treatment I find my land improve rapidly, and my income in like proportion. But I am sorry to say there are many farmers among us who are still pursuing the old land-killing system, scarcely making both ends meet. I might say something concerning the beneficial results of underdraining, and of lime as a manure; but I must conclude for the present."

This communication affords a worthy example of prudent industry and good management, and shows that even a poor farm, well managed, may be rendered more productive than many a good farm now is under bad management.

THE LAND OF PROMISE.

William Gould, formerly of Lorrain, but now of Greenfield, Ill. sends us the following account of the country of his choice, which may be interesting to many of our readers.

"I have bought 200 acres of land here, on String Prairie, at $3 per acre: 160 acres prairie, and 40 timber five miles off. Partially improved farms sell from $5 to $15 per acre. I am much pleased with my situation for the following reasons. 1. The land is cheaper than at any other place I have visited. 2. It is nearly all owned by individual settlers. 3. It is healthy. I reckon we are 100 feet higher than the waters of the Illinois river. 4. The face of the country is beautiful. There are roads in every direction, without any labor but travelling them. 5. Nearly all our fields, and principal roads, have right angles—a very great convenience in my opinion. 6. There is but little waste land. 7. The climate is delightful. 8. Slavery is prohibited here. 9. The temperance society is flourishing. And 10, the soil is rich and productive. Melons grow enormously large; corn becomes like a forest, 10 to 15 feet high, with ears having 20 or 30 rows on the cob; grapes are abundant and delicious, apples fine, and we abound in wild turkies, prairie hens, rabbits, &c. Our stone is in quarries. I can get raw prairie broke up at $2 per acre. The soil is generally black, and from 2 inches to 10 feet deep; much of it 2 feet." "N. B. If you publish my letter, I request that the words be spelled according to Cobb and Walker, which is a much better standard than Webster. Yours in the spirit of enterprise and improvement."

SOW SPRING WHEAT LATE.

Reuben Wheeler, of Vergennes, Vt. having suffered the loss of his wheat crop, by the grain worm, for several successive years, adopted the practice of sowing his spring wheat late, and has in this way had fine crops, while the early sown grain has been uniformly destroyed by the worm. The same practice has been adopted by his neighbors, with like success.

CURE FOR THE SCAB IN SHEEP.

Mr. Wheeler also writes us, that his flock was so afflicted with scab, that he lost one hundred, and his fleeces were diminished 11 cents per pound in consequence of the diseased state of the animals. He cured them of disease, and restored his flock to fine condition, in which they still remain, by the following means. He boiled 8 lbs. tobacco in 8 pailsful water, down to 5 pailsful. To this he added five pailsful of weak ley from wood ashes, and one barrel of soft soap, and added soft water. Filling in part a half hogshead with the liquid, he dipped into it 350 sheep, liquid being added as required. The sheep were, as fast as they were dipped, placed in another tub, and the liquid pressed out of the fleeces with the hands. The wash cleanses the skin from all scurf, kills the lice and ticks, promotes perspiration, and greatly facilitates the growth of the fleece and the health of the animal. There is no doubt of the utility of any application that destroys lice and ticks, and fits the skin, by thoroughly cleansing it, to perform its all-important functions. [Mr. W.'s order for seeds is sent to Mr. Thorburn.]

CURE FOR SLABBERING IN HORSES.

Thomas Paine, of Paine's Hollow, recommends, that when horses slabber, on being pastured in clover, they be turned into dry, or old pasture, or fed with hay or oats.

TO DESTROY ST. JOHNS-WORT.

Mr. Paine advises us, that he has fully succeeded in destroying this noxious plant, by cutting and burning the plants, thus destroying the seed, and then dressing the grounds with a good coat of plaster. The effect of this mode of treatment was, that where there was but little grass before, he obtained a heavy crop, and there was scarcely a stock of the St. Johnswort to be seen. He advises sowing plaster early.

Washington county, Va. March 4.

The last crop of wheat in south-west Virginia was greatly lessened by the hard winter and Hessian fly, and rye was nearly a total failure. Oats and hay were a bountiful crop, and potatoes were never superior—one proprietor raised ten thousand bushels. This winter has been very unfavorable, very similar to the last.

Permit me to mention the mode of raising potatoes in our neighborhood, and it is the only mode in which we are successful. We plant our corn six feet apart, in rows east and west, and after the first dressing, we plant potatoes between the rows of corn, and afterwards dress both together. The corn crop thus shades the potatoes, and protects them from the meridian sun. We have seen a similar protection recommended for strawberries, by planting south of and near the strawberry bed a row of Jerusalem artichokes.

NOTICES OF CORRESPONDENTS.

G. M. Lewis, Scott's Ferry, is informed, that buckwheat, as a green crop, *is* a fertilizer of the soil. It may be sown at any season, or twice or thrice in a season, and turned well under when in full bloom—and the crop intended to follow it put in upon the fresh ploughed furrow. No cross or second ploughing allowed.

J. Dill, Newark, Ohio, wants a practical nurseryman, as a partner.—Mr. Dill's letter may be seen at this office, or he may be enquired of by letter.

A. B. C. who dates at Huntington, L. I. will find his enquiries relative to the locust, anticipated in our last number.

T. M. F. who dates near Cecilton, Md. will also find his enquiries, relative to a cob cracker, answered in our last. The cast iron bark mill, we believe, is generally used in the north for this purpose, by horse or water power. We have not the opportunity of knowing its price or performance. Maxwell's machine, we believe, is only a corn *sheller.* We are not familiar with the process of fermenting wines; but believe the practice is common, in some wine countries, as it is here with cider, to manage the vinous fermentation in open casks or vats; but in this way it requires close attention and discriminating judgment. The liquor should not be exposed to a high temperature, nor the fermentation permitted to run too far.—Twenty-four to 48 hours suffices for the juice of the currant and other domestic fruits. The liquor should be drawn off the moment it becomes clear, which is known, generally, by the cracking of the crust or scum which rises to the surface.

WEEDS.

L. Hebard asks us how to eradicate charlock, and D. Gaylord wants to know the best means of destroying the Canada thistle. Upon the latter subject the Cultivator contains ample instructions. Destroy their leaves, or lungs, and they will die. This may be done by frequent ploughing, say 4 or 5 times in a summer; by cutting them up as often with a hoe; by making dung heaps upon them; and, in a great measure, by cutting them low with a scythe at midsummer, when coming into blossom. Charlock, being an annual, is more difficult to get rid of. It infests clayey grounds, and its seeds often remain dormant a long time in the soil. The only practicable mode of eradicating this and other pests of annual growth, is to *prevent the plants coming to seed*, by carefully eradicating them when in bloom, and taking care not to sow seeds with our grain and grass. As regards weeds generally, we remark, that annuals and biennials, as sorrels, are destroyed by cutting over the plant below that whence the seed leaves originated, as this prevents them ever springing again from the roots. Perennials of the fibrous rooted kind, that is, those possessing only small slender roots, as the crowfoot, ragweed, and fibrous rooted grasses, may be destroyed in the same manner. Some fusiform (i. e. spindle shaped) rooted perennials, may also be destroyed by similar means; but almost all the thick rooted perennials, as dock, require to be wholly eradicated.

We have two requests upon our Jersey correspondent, A. B. C., to know how he contrives to make the large quantity of manure, which he speaks of, in yarding cattle. Will he please respond to these inquiries? Mr. Gaylord's enclosures will be noticed hereafter.

ECONOMY IN BREAD.

We have received several suggestions from correspondents on methods of economizing this important article of diet, by mixing with flour potatoes, rice, barley meal, oat meal, &c. These all abound in nutriment; but yet it may be doubted whether they acquire any additional nutritive property by the admixture, or whether they impart either nutriment or improved flavor to the flour. The greatest claim these admixtures have upon our notice is, that they seem to cheat our appetites, and make us believe, that while we think we are eating bread made from superfine wheaten flour, we are in reality stuffing ourselves and our friends with potatoes, rice, &c. Altho' we like potato bread and biscuit, we nevertheless like the potato equally well, either as a substitute for or appendage to bread, when well roasted or boiled. And so with rice: it is excellent boiled or baked, plain or in puddings or pies. Barley, we are assured by a neighbor, makes good bread, hardly distinguishable from wheaten bread; and *we* know that it makes excellent griddle cakes; and the Scotsman will tell us, that *nothing* adds to the value of good oatmeal. Perhaps there is no bread more healthy and economical, and none more palatable to many, than old fashioned New-England *rye and Indian.* An English economical society once sent over to Ireland for a man to come and teach them how to make *potato bread.* He came, and after being sumptuously entertained, proceeded to give his instructions to the society as follows: "Take the best potatoes, wash them well, boil them, and dish them up and ate them while warm and smoking, with mate or fish, as you like, or can get—that, says he, is the way we make potato bread in Ireland." Our correspondents will pardon us for thus treating their kind intentions; but really every good housewife has long been familiar with the modes of mixing, in the wheaten loaf, potatoes, rice, Indian meal, &c. We wish some of our southern correspondents would instruct the northerners, through our columns, in the secret of making *good* hominy and *warm* corn bread.

We are daily expecting to be able to give satisfactory answers to the inquiries of J. M. Garnet, Esq.

The Rev. Rob. Wilson, of Williamsport, will find his wishes, in regard to planting, pruning, &c. in a great measure anticipated in our last No. We should recommend autumn or winter planting in the south, particularly if the trees are obtained from the north.

Mr. Todd will find answers to his queries, in regard to the hop culture, under correspondence, in the communication of Judge Cheever.

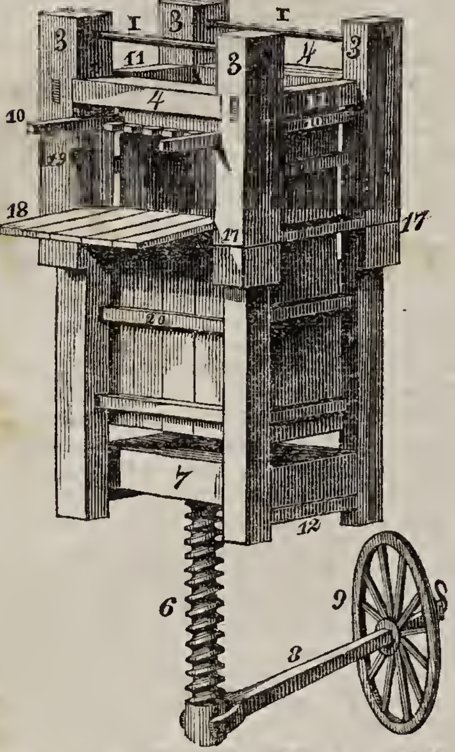
We have received an interesting account of the agricultural exhibition at the Big Lick, Ky. which we are obliged to decline publishing in detail, for the reason, that the numerous societies among the members of which the Cultivator circulates have an equal claim to our columns, and that it would be impossible to publish all of their proceedings. The exhibition was remarkable for the number of fine horses, and cattle of improved breeds brought on the ground, and shows that great attention is there paid to blood, as both horses and cattle are mentioned by name, and their pedigree scrupulously detailed.

Prejudice and conceit are the offsprings of ignorance, and the great barrier to agricultural improvement. An African prince threatened to take the life of a traveller, because he dared to assure him, that water became solid by freezing, in his country.—Because he had not seen it, the prince deemed the traveller an impostor and a liar. A few years ago, the growth of a hundred bushels of corn on an acre was considered a fabulous tale by the mass of our farmers. They had not seen such a product, and they therefore did not believe in it. But such a product is now of so common occurrence, that few doubt its reality. Tell these men that they can double the products of their farms, by economizing and judiciously applying their manures;—that they can quadruple it, by this, by underdraining, by alternating crops, and by root culture—and they are as incredulous as the African prince, because they are ignorant of those natural laws which ever have governed the material world, and which ever will govern it. The savage laughs at and rejects the arts of civilized life, for the same reason that the ignorant or indolent farmer scouts the idea of improving the condition of society by agricultural societies, agricultural schools and legislative bounties for agricultural improvement.—They either do not know enough of natural science, to comprehend its utility in the ordinary business of life, or they are governed by a sordid, selfish, illiberal policy, which, could it be carried out, would shut out every ray of light, and smother every sentiment of patriotism, which should either thwart their views, or which would tend to elevate their fellows above their own limited standard in society. Some men seem to have an idea, that they are balanced in a scale; that as others can be made to sink, in the same proportion they shall rise, and vice versa. The first requisite to improvement, in any business, is the conviction, that we *can* learn; the next, that we *will* learn. And it perhaps is invariably true, that the more we *do* learn in useful knowledge, the more we become sensible of our comparative ignorance, and the more we are anxious to learn. This results not only from a wish to serve ourselves, and multiply our enjoyments, but from a sense of sacred duty to society.

The Contrast.—Massachusetts gives nothing from her public treasury to sustain her common schools, but she gives bountifully from her public treasury to sustain and encourage her agricultural societies, and is now about making an *agricultural* survey of her territory. Her schools are surpassed by none in the Union. New-York has given millions to her colleges, and millions to her common schools; but she clenches her purse with a convulsive gripe when she is asked to aid and encourage agricultural societies.—If it is true, that wisdom lies between two extremes, these states might learn from each other.

Fat Mutton.—Half a dozen of Dunn's New-Leicester sheep were lately butchered, and the mutton exhibited in our market, which excited the admiration of all who saw it. The total weight of the six carcasses was 810 pounds, averaging 135 pounds each. One carcass and a haunch were sold to a gentleman of N. York for $51.25. We have heard of several of this breed of sheep being sold, this year, to the butcher, at $20 and $25 each.

Errata.—The reader is desired to correct two material errors in our last, viz. p. 7, 2d column, 24th line, read "Winter pruning *bares* to the sun;" and in p. 8, 2d column, read the two last lines preceding the tables as follows—"els—(20+27=540) by the number of heaps—193—and the result shows that each heap should contain 2.79-100th bushels."



LAMPMAN'S HAY PRESS.—Fig. 6.

This is a figure of the Press recommended in our March number, by Judge Van Bergen. It consists of four upright posts strongly framed together, within which is a chamber of stout plank, of the size of the intended bundle of hay. The press is firmly fixed between the lofts of a barn, the hay being thrown in above, and the horse power applied to the sweep (8) and screw (6) below. The sides of the chamber are opened to remove the pressed hay, by doors hung upon rollers, (18) and the upward pressure of the screw, is resisted by a strong cap (4) which is pushed back or forward at pleasure.

CORRESPONDENCE.

UTILITY OF DRAINING.

Judge Buel—Dear Sir—Perhaps enough has already been said and written, of the wonders wrought by thorough draining, to convince the most sceptical of its beneficial effects on lands that really need it. But when I look around me, and see so much of the extensive and beautiful plains of this neighborhood yielding but a scanty return for the labor bestowed on them, and a considerable portion of them almost entirely unproductive, for want of this simple improvement, I feel that I shall not trespass on the patience of your readers, and may perhaps render them a service, by stating some facts that have fallen under my observation, in an agricultural tour through the British isles, &c. during the past year.

At present, I shall only state what I saw on a single farm, near Stirling, in Scotland, and the conversation I held with the intelligent occupant.—His farm consists of 200 Scotch (equal to 250) acres, most of it so level that it was with great difficulty, and only by digging a moat of nearly half a mile in length, from 6 to 8 feet wide at the surface and from 4 to 5 feet deep, that he was enabled to make an outlet for the drains. The soil is a stiff loam, or alluvial deposit from overflowings of the river Forth; the subsoil a tenacious clay; the whole farm is underdrained with tile, at 18 feet distance from each other, and about 2½ feet below the surface; the drains are formed by a flat bottom or sole, and an inverted trough, both made of earth and well burnt. When adjusted, they form a drain of about 12 to 15 square inches; the joints of the tiles are covered with straw or swingle tow. From the mouth of each of these drains the water was seen issuing in little rills into the common receptacle, the large open ditch or moat above mentioned, through which it was discharged into the river.

The stock yard, embracing an area of about half an acre, was also underdrained, and the surface perfectly dry, notwithstanding the continual rains of winter, which saturate the earth, and, were it not for the underdrains, would convert it into mud of great depth, by the treading of the teams in carrying the grain to the threshing machine.

Drains are also filled with rubble stone, where these are at hand; but where the stone has to be carried any considerable distance, so as to make the expense nearly equal to tiles, the latter are preferred, as being on the whole the best. He estimated the expense of tile draining, 18 feet apart, at 5 or 6 pounds the Scotch acre, ($22.20 to $26.66) but was unable to tell precisely the amount, the work having been done at intervals, and the tiles paid for by his landlord. In reply to my remark, that it was a costly improvement, he said, "*But it costs a deal more not to do it*"—which he illustrated, by pointing to an adjoining field, that had not been underdrained and was grown over with rushes. "My farm, (said he) before it was underdrained was also full of rushes. In spite of my best efforts in tilling and seeding, the rushes would supplant the grasses by the second or third year; but not one has been seen since my farm was drained. The expense of draining was a matter of mutual understanding between my landlord and me, and has proved a benefit to both of us. I have obtained an extension of my lease, and my landlord a higher rent in prospect, both of us looking to the prospective increase of product for a reimbursement of the outlay. The increase of crops has paid the expense in two years, enabled me to pay a higher rent, and yielded me a proportional increase of compensation for my labor."

To give an idea of the importance attached to draining, I will state that notwithstanding the extent to which the system is carried, even exceeding in some instances the example above given, I saw it stated in one of their public journals, that "there probably is not a well drained parish or farm, even in the Lothians." Excepting a few isolated farms, I believe it to be strictly true; for I saw many districts where this improvement was still in progress—some farms on which it was just commenced, and others where it was apparently not yet thought of, though it appeared to me to be equally needed, and which, as I was told, were naturally as good as any, but for want of draining brought only half the usual rent, and "give the tenants but a hard life of it." The proprietor, in consideration of the low rent, thinks the tenant ought to make the improvement; the tenant, in view of the scanty product, and perhaps in prospect of a rise of rent at the expiration of his lease, would throw the whole burden on the landlord—and both, mistaking their true interest, agree to get what they can from the land with the least outlay. The land, in its turn, requites this unkind treatment, by yielding each succeeding year a more scanty crop, and in the end blights the prospects of both proprietor and cultivator.

I am aware that objections may be raised against draining here to the extent which is practised in the north of Europe. These objections may be embraced under two heads:

1st. The climate and the nature of our agriculture are different, and do not require the same management; and

2d. The expense, arising from the high price of labor, and the comparatively low price of agricultural products, in a country having a sparse population.

Having already extended this paper beyond my intended limits, I have not time now, nor do I deem it necessary, to go into detail to answer these objections. Suffice it to say, that the rains of autumn and spring, together with the reduction of temperature during winter, render draining equally as necessary in the northern states as in the north of Europe; for I conceive that full half the beneficial effects of draining are referable to the temperature of the soil which it produces. Plants, as well as animals, have their habitudes, predilections and antipathies, which must be studied and consulted, if we would cultivate them successfully. Such as grow in water or cold springy ground, are mostly useless as food for animals, while those that are most useful to man and beast prefer a warm and dry soil, and some even require the additional aid of high atmospheric temperature to bring them to perfection. Indian corn is one of this kind. The uniform failure of this crop in our cold summers, is a fact of general observation; and although you may grow a spindling, dwarfish stalk, with a diminutive ear, on a cold and wet soil, it *never* luxuriates as in its proper element, unless its *roots* as well as its top are surrounded by an elevated temperature. The want of solar heat may be supplied to a considerable degree by *thorough* draining, and ploughing in *unfermented* manure. The secret of Mr. Reybold's large corn crop (see Cultivator, vol. 3, page 34,) lay in the "long manure," ploughed into a soil that is by nature loose and dry, and left there undisturbed to ferment. The fermentation of the manure warms the soil, and assimilates it to its own nature, and the gases set at liberty pulverize and loosen it in their ascent, and also furnish an abundant supply of nourishment for corn and root crops, &c.

As to the expense, with such as hold the six-pence so near the eye as to conceal a dollar at arm's length, this is an insuperable objection; but as *they* are not the persons to pay 50 cents for your paper, it would be lost labor to argue the point with them, through that medium. It is true, the price of labor here is something more than it is in Scotland, but the price of produce at present is more than proportionably high. I saw beautiful wheat sold for 4s. and 6d. sterling ($1,) when the price here was $1.50. The large importations of foreign grain of late is a sorry commentary on our agriculture, and should stimulate our farmers to improvement. The American farmer has in the tenure by which he holds his lands, a security for any expenditure in the form of improvement, which the English or Scotch farmer has not. The former is generally the lord of his domain, and whatever improvement he makes increases the value of his land and his fast capital, while the latter is obliged annually to disburse, in the form of rents and poor rates, a sum nearly or quite sufficient to make the improvement under consideration. I would say, then, away with the parsimony that would starve your farm. See that your title deeds are valid; remember that if you double the product of your lands you double their value, and that the money you lay out for that purpose, is more safely and more profitably invested, than it would be in any bank or stock company.

Coxsackie, Feb. 16, 1837. A. O. SPOOR.

HOP CULTURE.

H. Todd, of Dover, Del. having inquired of us in relation to the culture of hops, we have asked and obtained from the Hon. S. Cheever, the following answers to the queries propounded. We only add, that the sets may be obtained from Judge Cheever, if application is made early.

Judge Buel—Mr. Todd's note to you, inquiring in relation to the cultivation of hops, is before me. He inquires,

1. What kind of soil is best suited to their cultivation?
2. How are a large number of plants to be obtained?
3. What is a fair average price in our market?
4. What the mode of cultivation in those countries where the cultivation has been most successful? with any other useful information upon the subject.

I have been in the cultivation of hops for the last ten years, upon alluvial soil, which I consider well suited to their growth; but I am not certain that the fogs which prevail in the neighborhood of rivers and smaller streams, do not injure them as they approach maturity.

1. Ans. Any good land with loose subsoil which will produce Indian corn or wheat, will, with proper cultivation, produce hops. The less exposed to violent winds the better, as they are liable, when near maturity, to be bruised, and the branches broke off, from high winds.

2. Ans. The sets or plants are obtained from fields in cultivation, by removing the head of the root and upper branches which form near the top of the ground.

The English set only the head of the root, which is larger and of course has more vegetable strength, and produces a more vigorous plant. The cultivators in this country have been less scrupulous, and use both the head of the main roots, and also the branches or runners, to set.

These sets are obtained without much expense, and a field at the spring dressing will furnish sets for a new field of about the same size.

3. Ans. The price in our market has varied from five cents to fifty in the last eight years. In 1827 the price was very fair, from twenty to twenty-two cents per pound. They then fell down to ten cents, and lower, and remained very low until after the cholera prevailed in France, in 1831 and 1832, when an order was issued by the French minister of war, directing rations to be issued to the army in beer, instead of wine—the effect of which was, to raise the price of hops again in this country to 20 cents, at which they stood for two years, 1833 and 1834. They then declined to 12, to 14 cents, in 1835, and in 1836 down to 6, to 10 cents per pound, at which the last crop was sold. France and Germany now grow them in quantities nearly sufficient to supply their own demand, and there is no probability that the price will again advance here until the quantity is reduced, either by reducing the fields of cultivation or by a failure of crop. The quantity produced in this country now by a good crop, is about two fifths more than the home consumption; and as there is no prospect of a steady demand for exportation, whoever cultivates hops in this country hereafter, must expect to do it at a loss, unless some unforeseen change shall occur in the market.

4. Ans. The ground should be prepared in the spring, in a manner similar to preparation for a corn crop, and marked out in rows each way, by a line or otherwise, 8 feet apart, and set with or without manure in the hill. The sets, which should be cut about 4 to 6 inches, may be laid down horizontally, say 2 or 3 inches apart, or set in perpendicularly, by making a small hole in the ground with a sharp stick, then forcing the earth around them, putting 3 to 5 in a hill, in proportion to their size and apparent soundness and strength.

The field may be planted with corn between the rows the first year, as the hops require no pole, nor do they produce any crop. They require poling the second spring, with poles from 20 to 28 feet long, according to the strength of the hill, two and three poles to the hill. As soon as the vine is of sufficient length, it is coiled around the pole, and tied with a rush or blade of coarse grass, putting two and sometimes three vines to each pole, and the other vines pulled out, that the whole strength of the root may pass into the vines on the poles.

The ground is ploughed between the rows and kept clear of weeds, as in a corn crop. The third spring, and every spring after, the hill, which should be formed around them in the summer dressing, is reduced to the level with the ground, or a little lower, and the upper branches and head of the main roots laid open, and cut off with a knife, to prevent their spreading beyond the hill.

The crop is usually matured by about the fifth of September. The vine is cut near the ground, the pole taken down, and the hops picked by hand into a bier, and then taken to the drying house and dried upon a kiln, and after laying a few days after coming from the kiln are pressed and secured in canvass, and are ready for market.

The expense of cultivating an acre of hops and fitting them for market, is from fifty to eighty dollars, including the decay of the poles. The expense of a drying house, with suitable kilns for drying eight to ten acres, with cooling room and press for packing them, will be from $300 to $800.

There are many details to be observed in the cultivation and curing of hops, which would require too long an article to give.

I remark generally, that the crop is a very uncertain one, and the market more fickle than that of any other article of agricultural production.—With a good crop and good market, it is a good business; but without both, it is not as profitable as an ordinary grain or hay crop.

S. CHEEVER.

IMPORTANCE OF AGRICULTURAL JOURNALS.

J. Buel, Esquire—Dear Sir—Finding it troublesome to send the amount of one year's subscription every year, I enclose you five dollars, which you will please place to my credit, and call on it as my agent for my annual subscription, so long as it lasts.

Permit me to express my approbation of the plan of your Cultivator. It is calculated to become an organized system of mutual instruction. It wants but one thing, in my opinion, to render it complete; that is, the privilege of receiving your letters and communications free of postage. This, no doubt, would increase the number of communications, from which you could select, digest, and disseminate to your patrons, increased information.

This boon I thought so small for congress to bestow, and the prospective advantage to agriculture so great, that I wrote to a friend in the senate, to suggest to their chairman of the committee on agriculture the advantage it would be to the husbandry of the United States, to have a law passed, extending to the editors or conductors of periodical papers exclusively agricultural, the privilege of receiving their letters and communications free of postage. He did so; but unfortunately the chairman of that committee was from North Carolina, and so the matter ended.

But the agriculturists have it in their power to cause themselves to be heard at the seat of the general government. If you, through the columns of the Cultivator, would suggest the advantage of such a measure, and advise the forwarding of petitions to congress at the commencement of their next session, if they should only be signed by the patrons of the Cultivator, there is little doubt but they would be attended to.

It is high time the agriculturists of the U. States should assume their proper station amongst the other interests of this extended republic. From their dispersed situation, and having no rallying point round which to concentrate their united force, they have heretofore been treated as the hewers of wood and drawers of water for the other interests, especially the mercantile interest, who have been the pets and have had the patronage of the general government ever since its commencement. They have their Chambers of Commerce and their Boards of Trade, through which they can bring their united force to operate to the attainment of their object. Let the farmers, thro' their agricultural societies and their journals, unite themselves for their own interest, and make their power be felt.—They are the bone and sinew of the country, and yet have been more neglected by government than any other interest in it.

From whence comes the present insidious attempt to injure our manufactures, by taking away their protection, but from the merchants, and that, too, under the hypocritical pretence of sympathy for the burdens of the people? Do not congress know, that for every cent the farmer pays for protection, he receives two, by the increased variety, greater demand, and higher price for his productions? If those men are not capable of devising a way to dispose of the surplus revenue without ruining our manufactures, let them act like honest men, resign and go home, and give place to men of sound practical sense—one ounce of which is worth a cart-load of those brilliant talents which shine, but vivify not.

If the patentees of those lately invented machines, such as Green's Straw Cutter, the Drill Barrow, and many others, would cause their machines to be made at Pittsburgh, they would find it to their advantage, as from thence the whole western and south-western countries would be open to them for their disposal. To procure them from east of the mountains, would not only be attended with trouble, but considerable expense; whereas, if they could be had at Pittsburgh or Cincinnati, few farmers in the west would be without them. There is at Pittsburgh a firm of Messrs. Evans, who own an extensive foundry, and are in the practice of making agricultural implements. I have no doubt but they would undertake for the patentees. When in Pittsburgh last summer, Mr. Evans inquired of me how he could procure the new invented utensils of husbandry. I recommended him to take the Cultivator, in which he would find them described and the patentees' names. I gave him your name and residence.

Thus, sir, I have given you some crude thoughts, on what I believe would tend to benefit the farming class; but of this you are the best judge, having thought more deeply on the subject, and being in a situation from which you have a better view. One thing I must repeat—that the agriculturists must cause their power to be felt, before their interest will be attended to.

I am, dear sir, with respect, yours,

Vincennes, Feb. 8th, 1837. N. EWING.

FRONTIER FARMING—LONG MANURE.

Champion, February 24th, 1837.

J. Buel, Esq.—Sir,—Having redeemed a farm from a forest, I have thought perhaps it might be acceptable to some of your readers to know the result of thirty-six years' experience, from the clearing of the timber from the land, until the stumps and roots are decayed and gone. Very little system has been pursued; most generally, the first cleared land has been seeded to grass, while other lands have been cleared and kept under the plough with a succession of crops; but others that have cleared more extensively, have made a uniform practice of seeding all their lands as fast as cleared, and letting them lie until the roots become rotten, so that they can plough to advantage. But when the stumps and roots are gone, the farmer finds that his land assumes a new aspect, becomes less productive, and that something must be done. Many at this juncture suppose their farms are worn out, and they conceive they have no means to restore them; accordingly, they sell for a trifle and remove to the west, where, it seems, they suppose there will be no need of exertion or labor. But I ask, is there no way whereby our farms can be kept up, or restored to their former productiveness? I answer, economy and good management will effect it. Manure is as necessary to the productiveness of land, as food is to the growth of animals. But many farmers complain for the want of the former, and their cattle in many instances show the want of the latter. This has been my situation, and the situation of most of farmers in this region; but I hope we may grow wiser on this subject. Manure is as necessary for the farmer as money is for the merchant or speculator, and there has already been much written on this subject: yet it appears that many are not convinced of its importance, or act contrary to their own conviction. If manure is necessary, and we suffer for the want of it, why cannot farmers be persuaded to manage economically concerning the subject? Why let their manure lie about their barns and yards, from year to year, to the destruction of their barns and fences, a constant nuisance, and detrimental to health and comfort? Or why, when the heap becomes intolerable, and is half or more wasted, draw it off and deposite it in large piles at the setting in of winter, to be exposed to the drenching rains, snows and frosts of winter; to be rehauled in the spring and spread upon the land, when at least two-thirds of its nutritious properties are exhausted? Or why let their cattle bask over their fields, from the barn to the stack, and from the stack to the watering place, leaving their droppings and urine scattered over from ten to fifty acres of land, to be dried and lost by the winds of April? While their cattle suffer for want of housing, and their land is trodden and injured by their feet; also a vast extra expense of fodder, and a loss in the condition of their stock? I ask, why is it that many farmers complain of the want of means, and are so negligent in employing the means which they do, or might, with little trouble and expense, possess? Whatever may be the cause, it is evident that farmers of this description, (and there are many of them in this vicinity,) "do not work it right." If you ask, "how should I work it?" I will tell you some things you can do to your advantage. House as many of your cattle as possible, and feed in mangers or racks; let your cattle, that must lie out, have a comfortable yard and shed adjoining your barn; let your stables be kept clean, and the refuse fodder from the mangers be thrown into the yard, your cattle fed in the yard once or twice in the day, (in suitable weather,) with straw or other loose fodder, which will form a mass sufficient to retain and absorb a large portion of the droppings and urine from your cattle. When you have made arrangements for saving manure, be careful that it is not wasted, see that it is drawn and applied to your land in the spring; perhaps the most economical application is to corn and root culture, but all your spring crops will be much benefitted by it, and if you have a surplus, you will not loose it, by applying it to your mowing fields. Your objections, that it is too coarse and not rotten enough, are ill founded, which I learnt by an experiment, more than twenty years since: I had removed and located myself on a different part of my farm, and was preparing a newly cleared piece of ground for a garden; having heretofore supposed, that fermented or rotten manure only was suitable for a garden, I drew from the site of my old barn and manured about half of my plot, but it being some distance, and having a supply of fresh manure from the horse stable, I applied the fresh manure to the remainder of the garden plot, and was much disappointed to find that the fresh manure was altogether the best; the application was made on a dry sandy soil. One other experiment I will mention, which is no fiction. I had a piece of ground in my mowing field, I should think about an acre, left rough when ploughed several years ago; wishing to smooth it and not to plough it, I went with a sharp hoe and cut off the bogs or hummocks, gave it a slight harrowing, and piled up the turfs thus cut off, and carried on twelve loads of manure, fresh from the barn yard. At haying time I found it some improved; but not answering my wishes, I determined to proceed further. The last spring I caused it to be sown over with gypsum, (plaster of paris,) and at mowing, I found an extraordinary large crop of first rate hay upon it, more, I presume, than had grown on the same piece of ground in four years before. The turfs cut off and piled were carefully spread out the fall after cutting, so that now, instead of a rough hummocky, unproductive piece of ground, I have a smooth, rich, productive one, that will produce, probably, three tons of good hay; and this at the trifling expense of cutting off the bogs, piling and spreading twelve loads of manure and a dressing with plaster of paris, perhaps one bushel. The soil of the above mentioned piece of ground is a sandy loam, upon the margin of (what we call) a dry brook, naturally good, but by not being well cultivated when ploughed, and but poorly seeded, and not having an application of manure or plaster, it was completely bound out. If any of the readers of the Cultivator have lands in this situation, I think they may expect like results from the same application.

A JEFFERSON COUNTY FARMER.

BEET SUGAR.

ROYAL AND CENTRAL SOCIETY OF AGRICULTURE.

Report in the name of a special commission composed of M. M. Le Baron de Sylvester, the Duc Decazes, Count de Chabrel, Darblay, Crespel Delise, and Payen, reporter, with practical instructions, and prize questions on the extraction of sugar from beets, adapted to rural establishments, and the means of improving and forwarding this branch of industry, made in 1836.—[*In continuation.*]

[Translated from the French, by Dr. Spoor.]

The liquid separated from the solid sugar by decantation, and the remainder by the press, is diluted with eight parts of water, and mixed with cut straw or hay, which is left to soak for twelve hours. It disengages a little alcohol and carbonic acid; and is then a good food for horses, cattle, and sheep. It is improper to give it to animals without dilution, especially to swine; these swallow it with such greediness, as to surfeit and kill them. Competitors should make experiments, with a view to determine whether the molasses could be profitably returned to the fresh juice, and thus subjected to one or more operations. The last molasses, which is sold for from four to eight francs the 100 kilogrammes* to the manufacturers of white lead and alcohol, is sometimes otherwise employed with advantage, and it would doubtless be possible to find still other uses for this residue.

Reviving the animal charcoal.—This operation is now generally performed in the manufactories, and is indispensable at least in every centre of manufacture. There are several new processes which, apparently, might be used with success, even on a small scale; trials ought to be made to discover which are the most simple, the most economical, and whether, as has been lately proposed, the residue to be revivified, and the bones which are collected in the neighborhood, can be treated in the same furnace.

Refining, by draining, or by clarifying sirup.—A simple draining, taking place spontaneously, in a place somewhat damp, is sufficient to prepare raw sugar for ordinary consumption. The drying is promoted by spreading the upper portions, that are best drained in thin beds or strata, upon shallow vessels, or shelves, or cloths. A mode of refining more efficacious, and more prompt, consists in preparing a clarifying sirup of the strength of 32°, by dissolving some raw sugar in water, then clarifying it with fine charcoal, and filtering the sirup through some coarse charcoal, leaving it to cool, and pouring, by small portions at a time, the clear sirup thus obtained, over the surface of the loaves, which it is well to have previously covered with a little moist wool. The same result might perhaps be more easily obtained by moistening or impregnating the raw sugar with sirup, and pressing it frequently. It is of importance to examine which is the best mode of proceeding.

In many districts, farmers will find great advantages in uniting at some central point, and managing their entire crops of beets, the residue of animal charcoal to be revived, as well as the bones to be calcined. There are several instances which leave no doubt on this subject. But to render these associations the most useful they might be, it is expedient to determine which, among the numerous apparatus lately constructed, are those which, without being too complicated, offer the greatest facility in the division of labor, and require the least expense for the extraction of the juice, with respect to a given weight of sugar to be obtained. It is not improbable, that the celerity already obtained in the different parts of the manufacture, the defecation, and the different degrees of concentration, and boiling, may be surpassed, or that the advantages of celerity, as well as the facility of constructing and using the necessary utensils more economically, may yet be realized.†

The society of agriculture having unanimously acknowledged all the importance that belongs to the solution of the different problems relative to the improvement of one of our most delightful agricultural employments, and the great utility of rapidly extending throughout the country the economical manufacture of domestic sugar, has determined that a competition should be excited, and that several premiums and medals should be offered to attain this end. In consequence of which, the following instructions and prize questions have been adopted.

PRACTICAL INSTRUCTIONS ON THE MANUFACTURE OF SUGAR FROM BEETS, FOR THE USE OF SMALL COUNTRY ESTABLISHMENTS.

Utensils —We have given, at page eight, the names and places of residence of the principal mechanicians, with whom these utensils, properly constructed, may be found.

Graters of casting, fixed on a strong wooden frame; they are solid and easily repaired by the aid of a spare set of toothed plates.

Presses with wooden or iron screws.—The important parts which must be procured in the large towns, are the screw and beam, or nut. The frame work of solid wood may afterwards be built by a wheelwright or carpenter, either after a small model, or like a wine press; or we might even use the latter and increase its power, by limiting the extent of the place on the platform to be occupied by the pulp, the cloth and the hurdle, to two feet square, and heaping them up to the ordinary height.

---

* Equal to 75-100, or $1.50, for 220 lbs.—Tr.

† In the new Maison Rustique, published in separate numbers by MM. Bailly de Merlieux and Malpeyre, may be found the description of all the utensils, and different apparatus, employed according to the different systems in use.—Address Quai aux Fleurs, No. 15 a Paris.

Square pieces of coarse cloth or canvass.—These squares of strong but thin cloth, serve to wrap up an enclose the pulp, to keep it under the press. Two of them are laid down side by side, and the pulp is enclosed and piled up by crossing their points.

Knife and table.—A common table with narrow strips nailed on the edges to raise them, and then gently inclined towards the only side where the strip is wanting, will answer for spreading the cloth on, and enclosing the pulp. A roller, or rolling pin, similar to those used by pastry cooks, serves to smooth down the enclosed pulp, and a bucket placed under the fore part of the table receives the juice pressed out by the rolling pin.

Hurdles of willow or lath.—These flat hurdles, somewhat larger than the cakes of pulp enclosed in the cloth and pressed down, may be made of osier, or still better of lath, united to move at half an inch distance from each other with iron or brass wire. They may be strengthened by a plate of tin, to bind and enclose the ends of all the laths.

Buckets.—These are well known utensils, which may be made more solid and convenient by substituting iron for wooden hoops.

Boilers for clarifying.—Any large boiler may suffice, provided it can be made to boil in a very short time. It is preferable to have it set over a furnace, and that it has an opening near the bottom, furnished with a cock to facilitate the exhanges from one vessel to another.

Filters.—A bucket having a double bottom, the upper peirced with holes, and placed about an inch above the lower one, will very well answer for this purpose. A clean wet cloth is placed on the false bottom, coarse animal charcoal also moistened, is then put in, to the height of twelve or fifteen inches, in five to eight layers, with cloth interposed, throwing in carefully layer upon layer, covering the whole with a clean wet cloth, which is kept in its place by the aid of another board pierced with holes. The filtering takes place in the same manner as ley.

Pans for evaporating and boiling down.—These pans ought to be shallow, and furnished with handles for convenience of pouring out. They ought to evaporate three-quarters of the depth of the liquid in the time occupied by purifying the juice.

A skimmer.—This is a well known utensil. It may be made of tin or copper, and two or three times larger than the common family skimmer.

Pails.—Common wooden pails may answer; they are more convenient and more durable if made of copper.

Ladle.—This is a large ladle, which is more convenient if made to hold from one to two litres of liquid.*

Pot or coffee burner to revive the animal charcoal.—A cast iron pot, wide and shallow, that will admit of stirring the contents with a crooked stick, passed through a hole in the lid, will serve for this purpose; we may also use a large coffee burner.

Wooden moulds.—These vessels are made of wooden staves bound with wood or iron hoops, or we may even use pails or kegs, open at one end, and the bottom of which should be pierced with gimblet holes. The moulds or the kegs may be placed on props over pots and earthen pans, to receive the draining sirup or molasses.

Variety.—The white Silesian, and the yellow Castelmandary beets, are the kinds that are preferred. The first is more generally employed; its juice is more easily treated and generally the most pure.

Stripping the leaves.—When we give the beets the last hoeing, it is convenient to take off the leaves nearest the ground, which would soon spoil, and which moreover furnish a useful aliment for cattle.

Pulling or taking up the roots.—At the period of maturity, and even some days before, the beets are taken up to supply the first operations of the manufactory, and in order not to house any till it is to be feared, that in waiting longer, we may be overtaken by rains, or frosts. All those which we intend to pull up, ought to be first deprived, on the spot, of all their leaves and crowns, to be used immediately as food for cattle, lest they should become dirty by mixing with the earth. If we cannot feed the whole of these prunings, we should bury them on the spot, as they make an excellent manure for the soil.

Storing the roots.—We may preserve in small heaps, out of doors near the manufactory, and in barns, or even in the fields in small piles, covered with eight inches of earth, all the beets which we suppose we can use before the hard frosts, the overplus is housed or covered in ditches of from three to six feet wide, of the same depth, and of any length. It is well to leave a partition of earth at intervals of twelve feet. (Any other sheltered place is proper to preserve beets.)

The beets are put down with some precaution to avoid as much as possible bruising them. When the trench or pit is heaping full, they are covered with twelve to eighteen inches of compact earth, which is heaped up so as to be shelving both ways. At intervals of five or six feet from each other, in the middle of the ditch or pit, fascines or bundles of brush are put down, extending a few inches above the covering of earth. The trench is broken open at one end, to take out each day the quantity of beets to be manufactured.

Cleaning the beets.—This operation is very simple. It is sufficient to rub the beets against each other in a vessel half full of water, with the aid of an old broom, or shaking them in a basket plunged in water. In soils which are not too compact, dry scraping with a knife may take the place of the washing, removing the greatest part of the earth and adhering stones.* In light soils, free from stones, the beets are often fit for rasping without any cleaning.

Cutting off the crown of the beets.—In the small establishments, especially when the neck of the beet has not been cut at its base before rasping, the cortical part of the head is cut off by three or four slices with a knife, in such a way as to leave it of a conical form, and to remove the parts where the leaves were attached, which are the hardest, and contain the least sugar. These parts carefully preserved, are used with the small roots and pulp, of which we will speak hereafter, as food for cattle.

Rasping or grating.—This operation is very simple. If it is done by hand, two men relieve each other, one turning the crank, while the other pushes the beets gradually against the cylinder with the hand, or a wooden shoe.† When the rasp is connected with machinery, and put in motion by cattle or horses, or any other power, a single person is occupied in holding the beets.

Pressing.—The pulp is enclosed in clean cloths, the corners and edges of which cross each other, so as not to allow the pulp to escape in consequence of the pressure. Some of the juice is pressed out by passing the rolling pin over the pulp thus enclosed. Then the cloths filled with the pulp are flattened down, and successively piled on the platform of the press, separated from each other by a hurdle, described page 15, to the height of two or three feet.

At first, the pressure is very gently applied, then with greater and increased force, until no more juice can be drawn from it. The press is then unscrewed and another pressing commenced. The liquid obtained is immediately subjected to the process of purification. The residue of the pressed pulp may be turned to profit, not only by immediately feeding it to sheep, oxen and milch cows, but a great part of it may also be preserved without difficulty as fodder for future use, by drying it on metallic plates, or in an oven. The dried pulp may also be kept, if desired, in sacks or casks. It should be moistened with a little water before it is fed to the animals.‡ The pulp is also preserved by collecting it daily, and laying it up in a cistern or a hole dug in the earth, and covered with a roofing of straw.

Purification with lime.—It is well to try on a small scale the quantity of lime which it is best to employ. It should be just so much as, after being mixed with the juice, heated to a degree that is insupportable to the finger, and then carried to the point of ebullition, gives a strong foam, leaving, after some minutes of repose, the liquid limpid, but without the peculiar acrid taste of *lime*. In general, at the commencement of the season, (from the end of September to November,) we may employ from three to three and a half kilogrammes of lime for each 1,000 litres of juice.§ This dose of quick-lime is extinguished with hot water, by pouring on a little at a time, as fast as the lime slakes and falls to powder, and in such a way as to obtain a perfectly uniform mixture, fine and without lumps. In all there must be enough water added to make a clear milk, which will be about eight times the weight of the lime. The juice, heated as we have just said, is stirred, and the milk of lime poured in. It is then briskly stirred for three or four seconds and left to heat without further agitation, until the first bubble appears. The fire is then instantly covered up, or the boiler removed. It is left at rest for six or eight minutes, and then drawn off clear.

Racking off, draining and using the scum and deposite.—The clear liquid is drawn off by a cock, or poured by inclining the boiler, into a bucket, or reservoir, out is of this it is poured, or dipped with a laddle, a little at a time, upon the filter. The scum and dregs are left to drain off through a cloth, or what is better, put into bags of cloth, and subjected to the gradual pressure of a lever press, and in the end employed as manure, after being dried with powdered lime, and then spread on the soil.

First filtering.—The liquid, filtered like ley through the coarse animal charcoal, is immediately poured into the pan, when it is evaporated as rapidly as possible. We may add to it the fine charcoal which was separated from the coarse in the revivifying process, to be hereafter described, and which is taken off partly with the scum. This is added to a second purification, (defecation.)

Evaporation.—The evaporation is kept up, and accelerated as much as possible, by increasing the fire and stirring the liquid with a skimmer until three-quarters of the water is carried off. It is then poured into a bucket, from which the liquid is made to pass through a second filter, prepared as the first. During this time the evaporating pan receives the juice of a second purification.

---

* The litre is about equal to a quart.—Tr.

* When the beets are forked, it is useful to break off the little roots, which might retain stones between them, lest these should break the teeth of the rasp.

† Such as are wore by the laboring classes on the continent of Europe.—Tr.

‡ A part of this pulp may be converted into a coffee similar to that made of succory. It is sufficient to toast it like coffee, and then grind it. It is made more agreeable to the taste by returning it, after it has become cold, into the coffee burner, (bruloin) containing about one-quarter of its weight of coffee nearly toasted, shutting up the burner, and mixing the whole thoroughly, away from the fire. The mixture is then ground in a common coffee mill. This practice has already extended to some districts in the north of France.

§ From 6¾ to 8 lbs. of lime to 250 gallons of juice.—Tr.

Second filtering.—This second filtration is the same as the first; but when it is finished, the same filter serves for passing the juice of another purification, after which only a sufficient quantity of water is poured on to wash out the whole of the saccharine liquid.

Boiling down the sirup or drying.—The evaporated sirup, which has been filtered a second time, may be kept for several hours without undergoing much change. It is, however, best to finish the evaporation. It is this last ebullition which is called *the boiling*, (lacuite,) or drying. It is not difficult to perform if the purification and the two filtrations have been well managed, and if a sufficient quantity of animal charcoal has been employed; as this charcoal is not expensive, and as its properties may be restored by calcining it again, it is best to employ in each filter six kilogrammes for 100 kilogrammes of juice. Every operation will be facilitated by the depuration which it produces. The boiling will be well and speedily performed in a pan of a round or square form, and very shallow; not more than two inches in depth of sirup should be put in, and it should be made to boil by a good fire, and stirring with a small skimmer,[*] and when the quantity of vapor rising from the surface of the sirup shall appear to diminish while the boiling continues, it is nearly boiled enough. It is still more advanced, if the liquor raised with the skimmer appears very sirupy; and finally, the boiling is sufficient when, by putting the end of the finger on the skimmer, the drop of sirup raised, being pressed with the thumb and forefinger, forms, when they are separated, a thread, which bends back as it breaks. The pan should instantly be removed from the fire, and all the sirup poured into a bucket well hooped, or lined with thin copper, or into a large caldron placed within a larger vessel, and the interval between the two filled up with linen cloth, or straw, in order to avoid the too sudden cooling of the sirup. The pan is again placed over the fire, and a second charge of sirup poured in, to be evaporated to the same degree as the first, and then mixed in the same vessel, called the cooler. And thus one boiling follows the other, until the products of four or five boilings have been mixed together in the cooler. We may then, after gently stirring the mass, fill one or several moulds, or the barrel, to crystallize it

(To be continued.)

LIME—CUT-WORM—GRASS-SEED.

New-York, March 15, 1837.

It is a rare occurrence that I have ventured to record my agricultural experiments in the newspapers, although I think it a duty that we owe to each other, and not only to record them, but affix the name of the party making the experiment, that he may be referred to in case of need.

I have read recently much about the destruction caused by the cut-worm, and it brought to my recollection what happened to me about eighteen years ago, when I owned the reclaimed salt meadows, which are dyked, opposite to Newark, in New-Jersey. I wished to make an experiment *on the efficacy of lime* on that *peculiar soil.* I had previously satisfied myself as to its value on upland soil. These meadows were ditched in lots of about five acres. Early in the month of April I took a lot, had it well ploughed and harrowed, and sowed it with flax-seed, also with a mixture of timothy, red top or herds-grass, and red clover seeds. I directed a "*land*" or "*bout*" of eight paces wide and the whole length of the lot, in the middle of the field, to be limed, at the rate of about 100 bushels of slaked Barnegat lime to the acre, as near as might be. That year, for the first time, I found my meadows infested with the cut-worm, and in every part of the lot, *except where the lime was put*, the roots of the flax were eat off and destroyed, and the roots of the grass seed very much injured, but not entirely destroyed. Where the lime was thrown there was not only good flax, but the grass seed came up and flourished; the color of the grass was a very rich deep green, and it could be distinguished from the other part of the lot, as far as the eye could discern the field.

Afterwards, during that year and the following years, when the horses, mules, horned cattle and sheep, were turned to feed on that lot, you would see them confined to that space where the lime was put, as long as anything remained there to be eaten. The experiment having satisfied me, I made after that year free use of lime on those meadows, and have seen, at the end of twelve years, the beneficial results of its application. My lands have never since the application of lime to them been infested with the cut-worm.

I have known many persons declare, that lime was of no use to their farms; but on questioning them as to the *mode* and *extent* of the application, I found they were entirely ignorant of the manner it should be applied. I believe lime *judiciously* applied will benefit any soil. You may apply *too much* in the *first instance*, as well as too little. To a rich alluvial soil, like the reclaimed salt meadows, I *know* that 100 bushels of lime to the acre, on the *first application*, is not too much, and I believe that 200 bushels would be better; but if on the *first* application you were to put 100 bushels of lime to poor or worn out upland, I am persuaded it would injure the land for several years.

Hence, as the result of my experience, I would recommend that *worn out upland* should be ploughed deeper than in the ordinary tillage it had been—say from two to four inches deeper. Prepare the land for sowing the crop you intend to put in—say, if you please, oats or other small grain —sow your seed and harrow it once, then spread from 30 to 40 bushels of slaked lime, as near as may be, to the acre, and sow your grass seed, and then cross harrow the land. Many persons, I know, throw it on the ground after the crop is put in, leaving the rain to wash it into the land; but I prefer to harrow it once in. Afterwards, when you plough up the same land, and seed it down, you may apply from 60 to 100 bushels of lime, not only without injury, but with great benefit in the result; and if good husbandry is followed, lime to the extent of 200 to 300 bushels per acre may be applied afterwards, with great advantage. And my experience is, that in grass lands, the good effects of lime will be seen at the end of twelve years. I have applied many thousand bushels of lime to my land, and therefore have no hesitancy in recommending its general use, if judiciously applied.

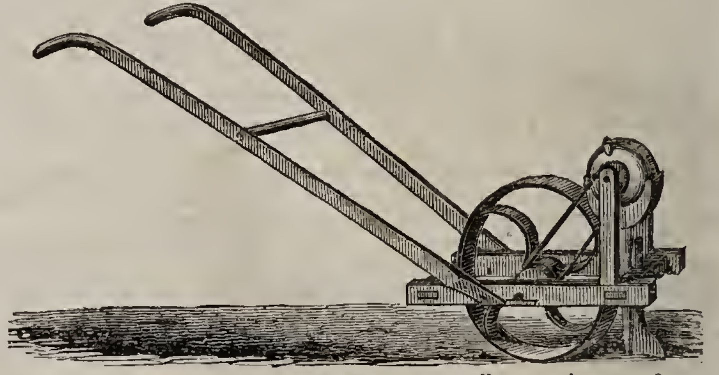
I think it advisable also to mention when the application of lime has *appeared* to be injurious, and leave others to make a further experiment; and therefore I state, that my Scotch farmer advised me not to *sow* wheat when I fresh limed my land, as it would smut the wheat. I replied to him, if it is beneficial to pickle your wheat and roll it in lime before sowing, to prevent smut, surely liming the land will not cause the smut. I disregarded his warning, and directed the application of lime on the wheat land—the following year my wheat was very much injured with smut. The philosophy of it I do not understand, but I took good care never to do so afterwards.

I have taken a course in relation to sowing grass seeds widely different from my neighbor farmers. I condemn the practice of putting a small quantity of seed, such as is usually put on an acre, because the seed when it comes up does not sufficiently cover the ground. You lose much in *quantity* of hay, and in its *quality*. My rule has been, whether on upland or low land, to mix well together my grass seeds—say herds grass, or red top, as it is sometimes called, timothy, and red clover—apply *one bushel of seed to the acre*, in equal portions of the different seeds. The consequence will be, that the seed comes up as thick as hair on a dog's back, the land is completely covered, and not injured by the rays of the sun after mowing in a dry season; the grass, instead of having large stalks and dry, are small and full of juice, and the hay not only increased in quantity, but is much more palatable to the animal.

All which I respectfully submit to the consideration of practical farmers.

A. DEY.

BEMENT'S IMPROVED TURNIP DRILL.—Fig. 7.



Mr. Buel—Sir—I will ask the favor of a small space in one of your columns, for a cut, representing one of my "Improved Turnip Drills," the principle of which differs but very little from the one described in the fifth number of the third volume of the Cultivator. The improvement consists in substituting copper and block tin in the place of a tin cylinder—with large holes for mangold wurtzel, beets, and small peas—with a band which can be slipped over the large holes, in which are pierced two sizes of smaller holes, the larger size for onions, carrots, and other seeds of a round or oval shape, not larger than onion seed; by slipping the band, and placing the smallest sized holes over the larger, it is then prepared for ruta baga, and seeds of the same size.

The wheel by which it is impelled, serves the double purpose of covering and pressing the earth to the seed, thereby causing a much more rapid vegetation.

The objection to the former coulters, through which the seed dropped, is completely obviated in this—for the coulter and seed tube are separate, which renders it almost impossible to fill with earth.

Another advantage this has over the former, is, the coulter being in front of the wheel, gives it the advantage of running close to a fence or tree.

It is very substantial and durable—the wheel is of cast iron, 16 inches diameter and 4 inches broad.

---

[*] If the sirup rises in foam, it is well to throw in a small lump of butter, which will cause it to subside immediately.

They are for sale at Wm. Thorburn's Agricultural Warehouse, No. 317 N. Market-street, Albany—price $10. C. N. BEMENT.

THEORY OF AGRICULTURE.

The theory of agriculture, which we lay down, is built upon the following fundamental principles; and with one or other of them every part of rural practice is more or less connected. *First*, That the soil ought to be kept dry; or, in other words, free of all superfluous moisture. *Secondly*, That it ought to be kept clean; or, in other words, free of noxious weeds. *Thirdly*, That it ought to be kept rich; or, in other words, that every particle of manure, which can be collected, ought to be applied, so that the soil may be kept in a state capable of yielding good crops. Every person, possessed of a sufficient capital stock, may act according to the first and second principles; but it is only where local circumstances are favorable, that the last can be carried completely into effect. No more, however, being required of the farmer, than that he shall make the most of his situation, the principle applies equally to all; and, in like manner, is equally correct and beneficial in all situations and circumstances.

Holding these principles in view, and assuming them as the basis of what is meant to be inculcated, we proceed to illustrate them in a more particular manner.

In the first place, the utility, nay, the necessity, of keeping land dry, and preserving it from being inundated or flooded with water, is so obvious, that few arguments will be required in support of this primary principle. When land is allowed to remain in a state of wetness, which may either be occasioned by spouts, or springs, in the under soil, or by rain-water stagnating on the surface, the earth gets into a sour state, which afterwards is detrimental to the growth of plants; and often, in the first instance, prevents either ploughing or harrowing from being successfully effected. Under such circumstances, the young plants, either of corn or grass, get yellow or sickly, and never assume that vigorous thriving aspect, which they maintain upon fields differently circumstanced. Besides, manure has not the same effect when the earth is drowned, or even injured with wetness, as when it is kept dry and free from superfluous moisture. Under-draining is the only method of correcting the evils arising from spouts, or springs, as will afterwards be more distinctly stated, and digging out the head-land, and what are provincially called *gau-furrows*, the only preventive against surface water, when heavy falls of rain or snow storms ensue. In fact, without attention to these important operations, arable land can neither be perfectly managed, nor full crops reaped. Perhaps, the goodness or badness of farm-management may be as correctly estimated by the attention shown to drainage, as by any other mark whatever. Where drainage is neglected, a sure proof is furnished, that many other branches of the art are imperfectly executed. Unless this branch of rural economy is assidulously attended to, the advantages arising from ploughing and manuring are only partially obtained.

In the second place, the benefit arising from keeping the land clean, is sufficiently discernible. Weeds, whether of the annual or perennial sorts, may be regarded as preferable creditors of the soil, who will reap the first advantage of manure, if allowed to remain in possession: their removal, therefore, forms an important object of the husbandman's attention.—Without detailing in this place, the most suitable means of removing them, it may be stated, that, according to the degree of success that follows the means employed, so will the goodness or badness of the husbandman's crops be regulated. If the strength, or nutritive powers, of the soil be exhausted or drawn forth by weeds, or such plants as the soil naturally produces, it is impossible that artificial plants can prosper. It rarely happens, to be sure, that the aborigines are altogether extirpated; but upon the smallness of the number depends the returns which the soil can make to man, for the labor bestowed upon its cultivation.

In the third place, the necessity of restoring to the soil, in the shape of manure, the powers drawn from it by artificial crops, is acknowledged by almost every person. No doubt, some heretical opinions have, at different times, been broached, concerning the utility of feeding land by generous manures; but these never had many votaries, and are now become so obsolete, that it would only be a waste of time to notice them. Manure, in fact, is the most powerful agent in the hands of the farmer, and the attention bestowed upon collecting, preparing, and applying it, constitutes an important branch of the art, which he practices. Perhaps agriculturists are more behind, in the points connected with this third general principle, than in the others; and here the utility of chemical knowledge may, in some respects, be estimated and recognised.

These three fundamental principles hang or fall together. Without laying land dry, neither the advantages of good ploughing, nor the benefits arising from manure, can be fully obtained. When any of the other principles are neglected, similar edects will necessarily ensue. But when they are all acted upon; when the land is kept dry, clean, and in good heart, the husbandman may expect a suitable reward for the trouble and expense bestowed on its cultivation. An agricultural code of this kind is not only a true one, but has the particular merit of being simple and distinct; nay, it has an advantage which few creeds possess; it may be understood by the dullest capacity. Were it carried into execution; were the operations of farmers regulated by its tenets; were their endeavors constantly directed to keep the lands in their possession dry and clean, and as rich as possible, then the country would be progressively improved. In a word, these are the fundamental principles of agriculture, though several other things, such as rotation of crops and the like, may be regarded as minor or inferior ones. All of them, however, are dependent upon the principles already noticed; because, were the fundamental principles rejected, the minor or inferior ones could never be successfully carried into execution.—*Brewster's Encyclopædia.*

Young Ladies' Department.

IMPORTANT REQUISITES IN A WIFE.

A knowledge of domestic duties is beyond all price to a woman. Every one of our sex ought to know how to sew, and knit, and mend, and cook, and superintend a household. In every situation of life, high or low, this sort of knowledge is of great advantage. There is no necessity that the gaining of such information should interfere with intellectual acquirement, or even elegant accomplishment. A well regulated mind can find time to attend to all. When a girl is nine or ten years old, she should be accustomed to take some regular share in household duties, and to feel responsible for the manner in which her part is performed—such as her own mending, washing the cups and putting them in place, cleaning silver, or dusting and arranging the parlour. This should not be done occasionally, and neglected when ever she finds it convenient—she should consider it her department. When older than twelve, girls should begin to take turns in superintending the household—making puddings, pies, cake, &c. To learn effectually—they should actually do these things themselves, and stand by, and see others do them.—*Mrs. Child.*

Many a husband has been ruined for want of these domestic qualities in a wife—and many a husband has been saved from ruin by his wife being able to manage well the household concerns.

A HEALTHFUL RECREATION.

Among the pleasant employments which seem peculiarly congenial to our sex, the culture of flowers stands conspicuous. The general superintendence of a garden has been repeatedly found favorable to health, by leading to frequent exercise in the open air, and that communing with nature which is equally refreshing to the heart. It was laboring with her own hands in her garden, that the mother of Washington was found by the youthful Marquis La Fayette, when he sought her blessing as he was about to commit himself to the ocean, and return to his native clime. The tending of flowers has ever appeared to me a fitting care for the young and beautiful. They then dwell, as it were, among their own emblems, and many a voice of wisdom breathes on the ear from those brief blossoms, to which they apportion the dew and the sun-beam.—*Mrs. Sigourney.*

INTEMPERANCE IN DRESS.

Greater numbers annually die among the female sex, in consequence of tight lacing, than are destroyed among the other sex by the use of spirituous liquors, in the same time.—*Dr. Mussey on Intemperance.*

Whatever tends to diminish the capacity of the chest, tends also to produce organic disease of the *heart* and *lungs*. Tight lacing is ever a dangerous practice, for if the heart does not suffer, the lungs and liver very frequently do.—*The Influence of Mental Culture, &c.*

Mrs. Sigourney lays down the following rules as to dress:

1. Not to permit *fashion* to impair health.
2. Dress should never infringe on *delicacy*.
3. Dress ought not to involve *unnecessary expense*.

A fundamental error in domestic life, of very serious extent, involving no less the comfort than the health of the family, arises from the ignorance or mistaken notions of the mistress of the house, upon the subjects of diet and cooking.—*Housekeeper's Register.*

PRICE CURRENT.

ARTICLES.	N. York. Jan. 24.	Boston. Jan. 20.	Philadel'a. Jan. 20.	Baltimore. Jan. 18.
Beans white, bush........	1 25.. 1 50	2 50.. 3 00	1 80..2 00	1 75
Beef, best. cwt............	7 00.. 9 00	7 50.. 9 00	7 00..9 50	6 50..8 50
Pork, per cwt..............	9 00..11 00	10 00..13 00	11 50	8 50..8 77
Butter, fresh, pound, ...	26.. 28	21.. 25	16.. 18	25.. 37
Cheese, pound, ...	8.. 10	10.. 12	10.. 12	13.. 14
Flour, best, bbl......	11 00..11 75	12 25..12 50	10 50	10 0..13 0
GRAIN—Wheat, bushel, ..	1 75.. 2 00	2 12.. 2 25	1 80..2 10	2 00..2 25
Rye, do. ..	1 13	1 15.. 1 20	1 40..1 50	1 35..1 40
Oats, do. ..	50.. 62	65.. 70	49.. 53	62.. 65
Corn, do. ..	1 04	1 18.. 2 07	90.. 97	85.. 91
SEEDS—Red Clover, lb...	14.. 15	16.. 17	9.. 11	13.. 14
Timothy, bushel,.	2 50.. 2 75	3 25.. 3 37	2 50..3 25	3 25..4 00
WOOL—Saxony, fleece, lb.	70.. 75	70.. 75	66.. 73	55.. 60
Merino, lb..... .	55.. 68	60.. 70	58.. 62	45.. 50
1-4 and com. lb...	45.. 50	45.. 50	40.. 44	36.. 40
Sheep, ...	....	6 00.. 7 00		
Cows and Calves,........	18 00..45 00	23 00..42 50	....	25 0..50 0

RECEIPTS, from Feb. 21 to March 22, inclusive.—Nos. under ten not noticed.

Alexander, Gen.		11
Appling, Jeff.		11
Auburn, Cay.		22
Ames, Mont.		40
Abington,	Pa.	22
Athens,	..	11
Augusta,	N.J.	17
Alexandriana,	N.C.	33
Alexandria,	D.C.	22
Ashtabula,	O.	19
Aldie,	Va.	40
Annapolis,	Md.	73
Binghampton, Broome,		11
Bainbridge, Chen.		22
Butternuts, Ot.		22
Brantingham, Lewis,		11
Broadalbin, Mont.		44
Buskirk's bridge, Wash.		18
*Berlin, Rens.		16
Butterfly, Ot.		33
Borodino, Onon.		11
Brookfield, Mad.		22
Bruynswick, Ul.		11
Bloomingrove, Or.		22
Baltimore,	Md.	36
Bardstown,	Ky.	11
Bloomfield,	..	22
Brookfield,	Pa.	11
Birdsfield,	..	11
Buckingham c. h.	Va.	22
Boston,	Mass.	33
Bernardstown,	..	18
Bridgeport,	Ct.	11
Barnard,	Vt.	27
Bridgewater,	..	11
Byberry,	N. J.	22
Bevans,	..	11
Clyde, Wayne,		33
Catharines, Chen.		22
Cooperstown, Ot.		11
Charlotte, Mon.		11
*Coxsackie, Gr.		15
Canterbury, Or.		11
Conesus, Liv.		11
Crawford, Or.		11
Catskill, Gr.		24
Champion, Jeff.		11
Cobleskill, Scho.		17
Charleston, Mont.		24
Clifton Park, Sar.		15
Collinsville, Liv.		11
Cowneck, Qu.		11
Charlton, Sar.		15
Canton, St. Law.		11
Cherry-Valley, Ot.		12
Coventry, Chen.		18
Caledonia, Mon.		11
Cleaveland, Os.		11
Columbus, Chen.		18
Coldbrook, Herk.		12
Cinnaminson,	N.J.	33
Crosswick,	..	11
Crawfordsville,	Ia.	13
Camden,	Del.	49
*Castleton,	Vt.	13
Connelsville,	Pa.	11
Concordville,	..	11
Canton,	..	11
Clear Spring,	Md.	22
Cecilton,	..	11
Comstock,	Mich.	13
Charleston,	Va.	44
Conrad's store,	..	11
Christiansburgh,	..	11
Crowder's creek,	N.C.	18
Colerain,	Mass.	13
Carrolton,	Ill.	11
Centre Montville,	Me.	11
Chelsea,	Vt.	66
De Witt, Onon.		13
Delhi, Del.		16
*Duanesburgh, Schen.		42
Durham, Gr.		27
Dalton,	Mass.	13
Deerfield,	..	51
Danbury,	Ct.	11
Dayton.	O.	11
Earllville, Mad.		11
E. Hamburgh, Erie,		11
E. Pembroke, Gen.		11
Ellisburgh, Jeff.		11
E. Groveland, Liv.		22
E. Bloomfield, Ont.		11
Elkhart,	Ia.	11
E. Fairfield,	O.	26
E. Rutland,	Vt.	22
Enfield,	Ct.	11
Easton,	Md.	33
East Bethel,	Me.	11
Exeter,	Pa.	11
Elkland,	..	11
E. Long Meadow,	Ms.	11
Freehold, Gr.		23
Factoryville, Tio.		11
*Fishkill, Dutch.		34
Flushing, Qu.		33
Fulton, Os.		23
Pranklin, Del.		24
Front Royal,	Va.	43
Frankfort,	Pa.	13
Factoryville,	..	11
Greenwich, Wash.		11
Grovesville, Mont.		11
Gorham, Ont.		11
Goshen, Or.		22
Greigsville, Liv.		11
Greenville, Gr.		15
Garretsville, Ot.		18
Glenn's Falls, War.		22
Greenwood, Steu.		11
Gaines, Orl.		11
Geneva,	O.	22
Gallipolis,	..	19
Greensboro,	Vt.	11
Georgia,	..	11
Glasgow,	Ky.	32
Geo'town†Roads,	Md.	11
Goshen,	Ct.	28
Greenwich,	N.J.	63
Glade Spring,	Va.	11
Granby,	Mass.	11
Hartford, Wash.		13
Hempstead, Qu.		12
Hopewell, Ont.		11
Huntington, Suff.		27
Holland Patent, On.		11
Hall's Corners, Ont.		11
Havanna, Chem.		22
Hamilton, Mad.		11
Hyndsville, Scho.		11
Hickory Corners, Nia.		11
Hannibal, Os.		11
Hartford,	Ky.	22
Hope,	N. J.	18
Hackensack,	..	11
Harbor Creek,	Pa.	11
Hicks' Ferry.	Ark.	11
Hagerstown,	Md.	11
Hillsborough,	O.	22
Howard,	Mass.	11
Hadley Up. Mills,	..	10
Hatfield,	..	11
*Hadlyme,	Ct.	22
Islip, Suff.		11
Ithaca, Tomp.		15
Junius, Sen.		11
Johnsbury, War.		12
Jersey, Steub.		22
Jennings' Ordinary,	Va.	11
Johnson's Springs,	Va.	33
Johnsonburgh,	N.J.	33
Keesville, Essex,		14
Kinderhook, Col.		20
King's Ferry, Cay.		13
Kellogsville,	O.	11
King George c. h.	Va.	11
Kendallville,	Ia.	11
*Keene,	N. H.	25
Larned's Corners, Ont.		10
Lafayette, Onon.		11
Lower R. Hook, Dutch.		11
Lagrange, Gen.		11
Lawyersville, Scho.		12
Lodi, Erie,		11
Lyons, Wayne,		22
Lasselsville, Mont.		12
Lebanon, Mad.		11
Lansingburgh, Rens.		37
Luzern, War.		10
Lewis, Essex,		18
Laurens, Ot.		15
Leedsville, Dutch.		11
Leeds, Gr.		11
Le Roy, Gen.		11
Laurel,	Del.	11
Lewes,	..	40
Lebanon,	Ct.	17
Lawrenceville,	N. J.	11
Lanark,	U. C.	33
Lewiston,	Pa.	11
Lovingston,	Va.	22
Lynchburgh,	..	62
Loretto,	..	11
Langhorns' tav.	..	11
Lee,	Mass.	11
Leicester,	Vt.	10
Laurel Factory,	Md.	11
*Leonardstown,	..	22
Liberty,	Ia.	22
Mayville, Chaut.		11
Minaville, Mont.		41
Mamaroneck, West.		14
Marshall, On.		23
Meredith, Del.		25
Mentz, Cay.		11
Maltaville, Sar.		11
Magnolia, Chau.		11
Mid. Granville, Wash.		11
Mauch Chunk,	Pa.	30
Milton,	..	11
*Murfreesburgh,	Ten.	55
Middletown,	N. J.	22
Mendham,	..	22
Morgan,	O.	17
Muskingum,	..	15
Michawaka,	Ia.	11
Milwood,	Va.	11
Montpelier,	..	44
Mayfield,	..	11
Mansfield centre,	Ct.	13
Manchester,	..	13
Madison,	..	20
Middletown,	Ky.	11
Middlefield,	Mass.	11
Medford,	..	11
Milford,	Del.	11
Milton,	..	11
Marshall,	Mich.	11
*New-York city,		39
New-York Mills, On.		12
New-Hartford, On.		31
Norwich, Chen.		22
New-Haven, Osw.		11
New-Berlin, Chen.		11
New-Paltz, Ul.		11
Newark Valley, Tio.		11
Newbern,	Va.	11
*Newmarket,	..	33
Newton,	N. J.	35
New-Brunswick,	..	22
New-Canaan,	Ct.	11
Norwalk,	..	26
Naugatuck,	..	80
Newton,	Md.	18
New-Holland,	Pa.	22
Newberry,	Vt.	11
New Berlin,	Pa.	11
No. Bennington,	Vt.	16
No. Hartland,	..	11
Northampton,	Mass.	50
New-Marlborough,	..	11
Owego, Tio.		32
Oswego, Os.		19
*Oxford, Chen.		41
Otego, Ots.		11
Oakland Mills,	Md.	11
Orange C. H.	Va.	11
Pine Ridge, West.		11
Pittsford, Mon.		22
Pleasant Valley, Dutch.		22
Painted Post, Steub.		11
Panama, Chaut.		11
Potsdam, St. Law.		18
Plattekill, Ul.		15
Phillipsburgh, Or.		11
Parishville, St. Law.		11
Pompey, Onon.		11
Plattsburgh, Clin.		25
Perrysville, Mad.		11
Porter's corners, Sar.		11
Princess Ann,	Md.	22
*Port Deposit,	..	15
*Port Tobacco,	..	22
Piscataquay,	..	22
Philadelphia,	Pa.	24
Pottsville;	..	11
Pittsburgh,	..	10
Pomfret,	Ct.	11
Pedlar's Mills,	Va.	11
Pittsfield,	Mass.	50
Pontego,	N. C.	11
Princeton,	Ill.	22
Queenston,	Md.	33
Quincy,	Ill.	17
Rushville, Ont.		20
Richfield, Ot.		14
Rome, On.		29
Rock city, Dutch.		11
Rosendale, Ul.		11
Redfield, Ot.		11
*Richmond,	Va.	22
Rapid Ann,	..	11
Rock Hill,	Ky.	22
Randolph,	Vt.	10
Rockville,	Md.	11
Rahway,	N. J.	11
Schenectady, Sch.		45
Saratoga Springs, Sar.		14
South Branch, All.		17
Sidney, Del.		22
Sherburn, Chen.		22
Salisbury Mills, Or.		13
Stockholm, St. Law.		11
Spencertown, Col.		11
Sherman, Chaut.		11
Springfield, Ot.		11
Salem, Wash.		20
Stuyvesant, Col.		14
Smithtown, Suf.		20
Stamford, Del.		14
Stokes, On.		27
Sangerfield, On.		33
Salisbury, Herk.		11
Speedsville, Tomp.		11
So. Bainbridge, Che.		11
Spraker's Basin, Mont.		13
Salisbury centre, Herk.		11
Summer Hill, Cay.		11
Sing Sing, West.		22
Sennett, Cay.		11
So. Kortright, Del.		22
Sullivan, Mad.		11
Salem,	O.	22
Sharon,	Ct.	20
Salisbury,	..	22
Stonington,	..	22
Suffield,	..	10
Savannah,	Ga.	23
Shrewsbury,	N. J.	11
Suckasunny,	..	12
St. Albans,	Vt.	33
Salem,	Va.	11
Stoney Point Mills,	..	11
Stonewall Mills,	..	11
Suffolk,	..	11
St. Inigoes,	Md.	11
So. Egremont,	Mass.	13
Sheffield,	..	17
Springfield,	..	15
Sandersfield,	..	13
St. Georges,	Del.	11
Smyrna,	..	12
St. Michaels,	..	20
St. Louis,	Mo.	44
St. Josephs,	Mich.	13
Sylvan,	..	11
Spring Arbor,	..	11
Troy, Rens.		13
Trenton Falls, On.		11
Tomhannock, Rens.		11
Truxton, Cort.		18
Tyre, Sen.		11
Thetford,	Vt.	11
Tyngsborough,	..	13
Trappe,	Md.	11
Tecumseh,	Mich.	11
Terre Haute,	Ia.	33
Ulsterville, Ul.		11
Upper Marlboro,	Md.	11
Unadilla Forks, Ot.		14
Virgil, Cort.		22
Vernon Centre, On.		11
Vincennes,	Ia.	11
Vermillionville,	Ill.	11
Virginia Mills,	Va.	11
Westfield, Chaut.		11
Wheatland, Mon.		11
Warren, Herk.		22
W. Mendon, Mon.		11
Warrensburgh, War.		10
Whalen's Store, Sar.		11
Westmoreland, On.		17
W. Sand Lake, Rens.		11
Winchester centre,	Ct.	10
W. Thompson,	..	11
W. Hartford,	..	31
Watertown,	..	11
Wilton,	..	15
Westminster,	..	11
Whitestone,	Va.	11
Wellsburgh,	..	16
Warminster,	..	10
Westford,	Vt.	11
West Alburgh,	..	11
Woodstock,	..	53
Woodsville,	N.J.	11
Walpole,	N. H.	16
Westmoreland,	..	15
Washington,	D. C.	14
West Point,	Ia.	11
Winchester,	Ten.	26
W. Springfield,	Mass.	22
Westfield,	..	22
Warwick,	..	11
Williamsburgh,	..	11
Willimansett,	..	12
Youngstown, Niag.		11
York, Liv.		22
Ypsilanti,	Mich.	22
Zelinople,	Pa.	10

Total subscriptions rec'd during 30 days, 8,214.

LIST OF AGENTS.

We are daily urged to publish the names of Agents, to facilitate the transmission of subscription monies for the Cultivator In consequence of our general invitation, a great number of post-masters, as well as other gentlemen, who have felt an interest in the diffusion of agricultural information, have voluntarily become agents. To give all their names, would occupy too much room. In our last, we gave the names of several, and we now add to the number, who will recieve subscriptions, free of charge, for the Cultivator; and we may hereafter add to the list. We name no agents in this state, as yet, inasmuch as the post-masters, generally, have kindly volunteered their services

L. P. Parks, p. m. Passumpsic,	Vermont.
J. Stearns, p. m. Chelsea,	..
Hon. W. Hall, Rutland,	..
J M. Olin, Shaftsbury,	..
P. Knight, p. m. Newbery,	..
J. Smith, Barnard,	..
U. F. Palmer, St. Albans,	..
Hon. G. Walker, Lenox,	Massachusetts.
C. Williams, p m. Deerfield,	..
A. Morgan, p. m. Springfield,	..
J. Shepherd, p m. Northampton,	..
T. Colt, Pittsfield,	..
H. Cooley, West Springfield,	..
L. Smith, Westfield,	..
G. Ryther, Bernardstown,	..
S. Benedict, jr. p m. Norwalk,	Connecticut.
H. Brown, p. m. Sharon,	..
W. C. Woodbridge, Stonington,	..
J. Whitman, p m. West Hartford,	..
B. Baldwin, p. m. Goshen,	..
J. R. Williams, p. m. Madison,	..
W. Spencer, Hadlyme,	..
J. D. Meers, Naugatuck,	..
C. Benham, p. m Salisbury,	..
R. Gillingham, Cinnaminson,	New-Jersey.
N. Lloyd, jr. Freehold,	..
R. A. Leonard, Middletown,	..
G. H. M'Carty, p m. Newton,	..
J Blair, Marksborough,	..
W. Myer, p. m. New Brunswick,	..
J Dickerson, p. m. Camden,	..
R. Byington, Johnsonsburgh,	..
J. Thornton, Byberry,	..
Ben. Shepherd, Greenwich,	..
F. Cook, Hope,	..
J Koller, p. m. Shrewsbury,	Pennsylvania
S. Lippincott, Mauch Chunk,	..
C. C. Beatty, Ahington,	..
R. Diller, New-Holland,	..
J. Anderson, Port Deposit,	Maryland.
H. M. Fitzhugh, Baltimore,	..
J. S. Stevenson, Newtown,	..
A. Bateman, p. m. Port Tobacco,	..
H. Thomas, Easton,	..
R. Wilson, Clear Spring,	..
J. C. Bryan, p. m. Queenston,	..
J. W. Ward, Govanstown,	..
J. M'Cormick, Brookville,	..
W. H. Johnston, Princes Ann,	..
B. I. Simmes, Piscataquay,	Maryland.
J. Spalding, p. m. Leonardstown,	..
T. Auld, St. Michaels,	..
C. P. Estis, Lovingston,	Virginia.
J. G. Nelson, Milwood,	..
T. M'Carty, p m. Wellsburgh,	..
J. A. Price, Huntsville,	..
H. Leadbetter, p. m. Montpelier,	..
R. B. Shaw, p m. Buckingham c. h.	..
J. Flore, Charlestown,	..
J. S. Spengler, Port Royal,	..
E. Valentine, p. m. Johnson's Springs,	..
C. Aunspaugh, Fincastle,	..
Geo. Richards, Leesburgh,	..
M. Davis, jr. Lynchburgh,	..
R D. Alexander, p m. Alexandriana,	N C.
L. Wilson, p. m. Crowder's Creek,	..
P. Crowell, Savannah,	Georgia.
W. N. Morrison, Alexandria,	D. C.
R. D. Lilly, Hillsborough,	Ohio.
F. Seeberry, Gallipolis,	..
R. Ewing, East Fairfield,	..
M. Hubbard, p. m. Ashtabula,	..
John Paine, Morgan,	..
J. Goldsborough, p m. Salem,	..
E. Mills, p m Geneva,	..
T. G. Smith, p. m Glasgow,	Kentucky.
M. Miller, Rock Hill,	..
J. Allen, Bloomfield,	..
R. Walker, p. m Hartford,	..
G. W. Fourneau, Flemingsburgh,	..
H. C. Carr, St Louis,	Missouri.
M. Morris, Ypsilanti,	Michigan.
J. Enos, St. Josephs,	..
J J. Pitkin, Quincy,	Illinois.
J. M Gay, Princeton,	..
J. M'Cullock, Liberty,	Indinna.
J. Farrington, Terre Haute,	..
T. Leet, Montreal,	Lower Canada.
H J. L Rodney, Lewes,	Delaware.
S. Dickson, p. m. Camden,	..
W. Estill, p. m. Winchester,	Tennessee.
J Wendell, Murfreesburgh,	..
J. Hall, p. m. Lanark,	Upper Canada.
J. J. Anthony, Hicks' Ferry,	Arkansas.
J. B. Elliott, Keene,	New-Hampshire.
J. Bellows, p m. Walpole,	..
J. Bean, p. m. Centre Montville,	Maine.
P. Carter, East Bethel,	..

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

VOL. IV. ALBANY, MAY, 1837. No. 3.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor.*
☞ *Office No.* 3 *Washington-street, opposite Congress Hall.* ☜
TERMS.—FIFTY CENTS PER ANNUM, TO BE PAID IN ADVANCE.

Special Agents.—JUDAH DOBSON, Philadelphia—Messrs. HOVEY, Boston—ISRAEL POST & Co. Booksellers, 88 Bowery; ALEX. SMITH, Seedsman, Broadway, and G. *R.* GARRETSON, Seedsman, 111 Fulton-street, New-York.—ALEXANDER WALSH, Lansingburgh, gratuitous agent. Any gentleman who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

THE HARVEST PROSPECT,

So far as regards winter grain, is gloomy, as much so, we fear, as it was twelve months ago. Our accounts from Virginia, from the middle states, and from the wheat districts of our own state, are all but favorable. The autumn was unfavorable, and the grain did not get its accustomed growth, and good hold of the ground. The spring has been equally unfavorable. The variable, or alternate freezing and thawing weather, has seriously injured the wheat and rye. We are yet to learn what injury this grain has to suffer from the Hessian fly. If we add to this, that the grain worm may be expected to extend its ravages south and west, probably into Dutchess and Ontario, we shall have little cause to expect a better wheat crop than we had in 1836. To show that the crop of 1836, fell far short of our consumption, it is only necessary to state, that there was imported into New-York alone, from Europe, in 1836, half a million bushels of wheat, and in the current year, up to the 19th of April, eight hundred and fifty-seven thousand bushels, making in the aggregate about one million three hundred and seventy thousand bushels of wheat, besides rye and other grain—thus drawing from the country some millions of dollars for bread stuffs, our great staples, which we have been in the habit of exporting to a large amount. Much of this grain came from the Baltic and the Black seas.

Admonished by these startling facts, and by the general commercial distress of our country, which has hardly begun to develope its worst features, it behooves the farmer to husband all his labor and his means, and diligently to employ them in augmenting his summer crops, of grain and of roots. The price of meats have been so high, and the scarcity of forage so great, that our live stock has been greatly diminished, and prudence and good management are necessary to replenish our herds and flocks. Much, in the present and coming years, will depend upon the industry, sagacity and firmness of the yeomanry of our country.

AMERICAN SOCIETY FOR THE DIFFUSION OF USEFUL KNOWLEDGE.

A number of distinguished gentlemen, belonging to different states of the union, formed themselves into a society, in October last, under the above style, somewhat on the model of the British society for the diffusion of useful knowledge. The officers of the society, consist of a president—(Hon. Stephen Van Rensselaer,) thirty-three vice-presidents, distributed among the states, a board of thirty-nine directors, an executive committee of twenty-three, chosen by the board of directors, a secretary and treasurer. Members of the society are required to contribute $5 annually; $100 within any one year, constitutes the donor a life member; $500 a life director, and $1,000 a life member and an honorary member of the executive committee.

The *object* of this association, is, as its title imports, the diffusion of useful knowledge, in all its various departments, among the mass of our population, in a chaste and cheap form; or, to adopt the language of the prospectus, it is, "to elevate the character of our national literature, and raise the standard of morality, by the introduction and more general diffusion of works of intrinsic merit, in belles-lettres, in Christian morals, in the arts, in science, physical, intellectual and moral;—to promote the improvement of our common school education, by providing standard sets of books of instruction for schools, and by procuring and publishing statistics and facts, calculated to illustrate the condition and prospects of education in our own and other countries; to provide suitable works of entertainment and information for children and youth;—to furnish the means of elementary instruction and general knowledge, in their own language, for resident foreigners and their children;—to cherish the general interests of literature, education and religion; of agriculture, of commerce, and of the arts, by preparing appropriate standard libraries of useful knowledge, embellished with illustrative engravings, and embued with a Christian spirit, for families and schools, for the farmer, the mechanic and the merchant, the seaman and the settler in the west," &c. &c.

The society purposes to commence immediately the publication of a district school library for the United States, to consist ultimately of from 50 to 100 volumes of instructive works on various subjects, calculated to interest and benefit the young; and to follow this soon with a library for mechanics, another for farmers, another for seamen, one for children, &c.

The plan of the institution is excellent. The means of carrying it into operation, are expected to be derived from annual subscriptions, donations and bequests; and, if we are to judge from the great good which there is reason to anticipate from its labors, they will be liberal and abundant.

Common school and social libraries, comprising books judiciously selected for their tendency, and for information in the arts of productive labor, are among the surest and best means of diffusing useful knowledge, of rendering labor more honorable and more productive, and of advancing the great moral and political interests of our country. The economy that the society is likely to effect, in the price of useful books, is matter of no little consideration—as the prices will, from the heavy editions required, and from preliminary arrangements with the publishers, be reduced one half from the ordinary standard, at least for the use of common schools. The society invites, and we trust will receive, the hearty co-operation, of liberal minded men in these projects of improvement.

TILLAGE HUSBANDRY.

BARLEY.

Summer barley is the only species cultivated in the United States. Of this there are several varieties, of which the "chevalier," and still more the "Annat," are found superior in Scotland. The naked barley is but partially cultivated here, though it is extensively grown, and highly esteemed on the continent of Europe. It unites very commendable qualities, being hardy in its growth, strong in the stem, tillering with great vigor, and producing abundant crops of very superior grain. It is also well adapted to the making of pearl barley, a process which is now gone into to some extent among us, particularly in Vermont. The quality of the straw is better than that of any other kind; it requires, however, to be sown earlier than any other sort, and only succeeds if grown in a rich and well tilled soil. Von Thaer considers it equal, both in weight and quality, to rye; and its nutritive properties have been found, on analysis, to be even superior.

Soils.—Barley requires a rich, friable and mellow soil. The best, according to Von Thaer's scale, contains 20 per cent of clay, 67 of sand, 3 of lime and 10 of humus; good barley land 38 clay, 60 of sand and 2 of humus; and ordinary from 48 to 68 of clay, from 30 to 50 of sand, and 2 of humus, or vegetable mould. In lands more sandy than above indicated, the crops is liable to suffer from drought.

Cultivation.—Turnips or potatoes, or even Indian corn, are a good preparation for the barley crop, as it requires a well-worked clean soil. In Essex, England, it is sown upon a fallow, which receives the seed furrow in the spring. The seed should always be sown upon a fresh-stirred soil.

Seed and sowing.—It is recommended to steep the seed twenty-four hours in soft water, that the grain may all germinate at the same time, and ripen equally. This is deemed more important when the sowing is late. Light soils may be sown earlier than those which are heavy. Early sowing is generally recommended; and, in fact, the finest samples of every kind of grain are thus usually produced. We do not specify any particular time, nor quantity of seed, because the time will depend on season and climate, and the proper quantity of seed upon these and other contingencies. It is usual to sow much less seed of all grains in the United States than it is in Great Britain. Our soils are generally inferior in artificial fertility, while, from the warmer temperature, in summer, of our climate, the grain tillers better here than there. It is well to sow barley at least some ten or fourteen days before we plant Indian corn. When clover and grass seeds are to be sown upon barley, it is considered best to let the barley plants first grow above the ground, and then harrow in the grass seeds with a very light wooden-toothed harrow, and follow with the roller.

OATS,

Are a northern grain, particularly adapted to high latitudes and elevated or cold locations. In these they make a better return, and the grain is heavier, than in warmer climates, and in more genial soils. Oat soils are identical with rye soils, neither requiring carbonate of lime, or much clay—though, in regard to moisture, the rye wants a dryer soil than the oat. Oats are grown upon almost all kinds of soil, but make the best return on fresh land and reclaimed moory or swampy soils, and, like every other crop, will repay care and labor. This grain is indigenous to the north. There are many varieties of this grain, of which may be named the common, the Poland, the Dutch, the potato, the Hopetown, the Tartarian, &c. The common kind is the most generally grown, and is the most certain in its product upon poor expended soils. The Poland and Dutch oats have severally had their day in Scotland, and both have been somewhat circumscribed by the potato oat, and these again by the Hopetown and other new varieties. The skinless oats are highly commended in Ireland. In this country they have not been sufficiently tried to judge of their relative profits.

Soil and culture.—Oats, like rye, are seldom sown upon land which will make a good return in a more valuable crop; and yet in many districts they form the most certain and profitable crop. They do well upon land broken up from rough pasture, as they flourish before the sod is decomposed, or the soil is brought into a fit state for finer crops; and are hence often advantageously grown upon a grass ley to precede wheat, in which case long manure may be applied to the oats with great advantage. This is almost the only case in which two crops of small grain may be made to succeed each other with advantage. The practice of seeding down with oats is objected to, on account of the oats shading the ground so much, and being apt to smother the young clover. The Poland and potato varieties require rich ground; and the Tartarian, the black and the red, are best adapted to mountainous districts and late climates. It is thought advantageous to procure seed from inferior ground. Early sown oats are found almost invariably to produce the largest quantity of grain; late sown of straw. They require more moisture in the ground than any other kind of corn; and it is important to have the grain formed before the commencement of the parching droughts of summer. The average produce upon medium soils throughout Great Britain, is estimated at thirty-two bushels per acre, of the average weight of forty-two pounds the bushel.

"In the *mealing process*, the oats, after being previously dried on a kiln, are made to pass through the mill stones, to divest them of their coarser husks before being ground. The kernels are then named 'grits' or 'groats;" and are next ground over again into a coarse rough meal, varying in fineness according to the custom of different districts. This is afterwards baked upon a heated iron into thin flat cakes, or made up with water, usually boiled into a thick consistence, and is eaten either with skimmed milk, butter, molasses or ale. It is thus very generally used as the common breakfast and supper of the greater portion of the peasantry of the northern parts of England, Scotland and Ireland, and forms a very nutritive and healthy food."

"The *indications of ripeness*, in all sorts of grain are few and simple. When the straw exhibits a bright golden colour from the bottom of the stem nearly to the ear; or, when the ear begins to bend gently, the corn may be cut. But—as the whole crop will not be equally ripe at the same time—if, on walking through the field, and selecting the greenest heads, the kernels can be separated from the chaff when rubbed through the hands, it is a sure sign that the grain is then out of the milky state, and may be reaped with safety; for although the straw may be green to some distance downwards from the ear, yet if it be quite yellow from the bottom upwards, the grain then wants no further nourishment from the earth, and, if properly harvested, will not then shrink. These tokens will be found to indicate sufficiently the ripeness of wheat, barley and oats; but that of rye arises from the straw losing some of its golden hue, and becoming pale."—*Br. Hush.*

FORTY-SEVEN YEARS AGO

A society was instituted in this state, "*for the promotion of Agriculture, Arts and Manufactures.*" Among its most active members were Chancellor Livingston, Simeon De Witt, Ezra L'Hommedieu, and others, distinguished as statesmen and patriots. This society continued its labors till 1804, when it became merged in the "*Society for the promotion of the useful arts;*" and at a more recent period, this again was merged in the "*Albany Institute.*" During the existence of the first society, five volumes of its transactions were published, we believe at the expense of the state. These publications, together with the active exertions of the members, gave an impulse to improvement in some of the older counties, which has now placed them at the head of American husbandry. These volumes contain much of interest and instruction. We propose to abstract from them, occasionally, such matters as we deem most important, and best fitted to forward the work of rural improvement.

The first anniversary address was delivered before the society, in January, 1792, by Dr. S. L. Mitchill. It admonishes the farmer to beware of exhausting the fertility of the soil by injudicious cropping; "The time will come, and indeed in many places now is, when the land repeatedly wounded by the ploughshare, and exhausted of its richness, shall be too weak, of itself, to make plants grow with their former luxuriance." The prediction has been woefully verified in many places. Let the *new* counties profit from the lesson. The address happily illustrates the excellence of good tillage, by the following story from Columella:—"Græcinus, in his book concerning vines, relates that he had often heard his father tell of a certain Paridius, who had two daughters, and a farm planted with vines. Of this farm he gave one third part, as a marriage portion, to the man who wedded his eldest daughter, and notwithstanding, received as much produce as before, from the two-thirds which he reserved to himself. Afterwards, on the marriage of the younger daughter, he gave away half the remaining land, and found his income in no respect diminished. What concludes he from this? But that the *third part* of the farm was at length better cultivated than *the whole* used to be before." How many have we now a days, who, like Paridius, might do better by tilling a third than they now do by tilling the whole of their farms. All admit the error of the practice of tilling *too much* land, and yet few seem to profit by their own convictions. The address recommends attention to the saving of manures, though it avoids the then vexed question of "What is the food of plants?" It recommends attention to the manufacture of maple sugar, to the propagation of the locust, (robinea pseudacacia,) and the white mulberry, and the culture of potatoes and hops. It states, on the authority of Sir Joseph Banks, that the Hessian fly is neither known in England or in Germany.

EXPERIMENTS WITH GYPSUM.

We find next in order an interesting communication from Chancellor Livingston, who, we believe, was the first to introduce the use among us, of gypsum, detailing a great number of experiments which he had made in 1789 and subsequent years, with this fossil manure, and also with carbonate of lime, in the form of ground oyster shells and pulverized lime-stone—and stating the results of these experiments. The applications were generally from five to seven bushels the acre. The applications now a days are generally limited to one or two bushels per acre. The Chancellor's experiments go to confirm the opinions we have long entertained, that gypsum is not beneficial upon all soils, nor to all crops. After stating the experiments and their results, the Chancellor draws the following inferences:

"1. That gypsum, in small quantities, has no visible effect on wheat or rye.

"2. That it is uniformly beneficial to Indian corn, unless it be in very rich or very wet soils.

"3. That it is beneficial to flax on dry poor sandy lands.

"4. That it is peculiarly adapted to the growth of clover in all dry soils, or even in wet soils in a dry season.

"5. That limestone pulverized has similar effects with gypsum; whether it is better adapted to wet soils, I cannot yet determine.

"6. That the effects of gypsum as a manure are hardly perceptible in the vicinity of the sea."

The reason conjectured for the last fact is, that the atmosphere on the coast is charged with muriate of soda or common salt—that the sulphuric acid of the gypsum, having a stronger affinity for the soda than the muriatic acid, unites with it, and forms a sulphate of soda, which if not unfriendly to vegetation, does not seem to aid it. The Chancellor advances the opinion, since amply confirmed, that calcareous earths are permanent manures, in proportion to the quantity employed; "for if this is small," he adds, "it must be frequently renewed, because this earth is soluble in water, and will be carried off by it, or imbibed by the plants themselves." This latter fact has been conclusively shown by Mr. Ruffin, in his valuable treatise upon calcareous manures. In speaking of the decreasing fertility of soils, from the effects of culture, water, fire, &c. he adds, "Let us not, however, tremble for the fate of posterity; the fossils which the sea affords, the vast quarries of marble, chalk, gypsum, marl, which all derive their origin from the same source, not only restore the loss which the water occasions, but agreeable to this system, compel the air to deposite the spoils of the vegetable world, and the fires which have consumed the old, to animate new plants." We may add, that the Chancellor found the gypsum beneficial in proportion to the poverty and lightness of the soil; and that modern experience has demonstrated, that it is beneficial to the potato, pea and other leguminous crops.

A BLESSING IN THE FORM OF AN ENEMY.

Ezra L'Hommedieu, favorably known in our legislative annals, and a nice observer in agricultural matters, prefaces a communication on manures, by observing, that the land in his county, (Suffolk,) was so constantly tilled, and so little attention was paid to making manure, "that an average of not more than five or six bushels of wheat was raised on the acre. This mode of husbandry was still pursued, and although the land was gradually impoverished, the farmer found the crop, though small, more than would pay for his labor and expense. The wheat insect, the Hessian fly, *put an end to this kind of husbandry, and in that respect has proved a blessing instead of a curse:* No other way being found to prevent the injury to this crop by the insect, but by *highly manuring the land.* Great attention since has been paid to making manure, which in many parts of the county has increased TEN-FOLD. This addition has been made by green sea-weed; by drifted sea-weed; by making a compost with barn-yard dung and turf; by mud taken from the creeks and swamps; by leached ashes, and by the fish called manhaden or mosbankers."

This narration of Mr. L'Hommedieu affords important hints to a vast many farmers, who are careless of saving or applying manure—who are going on, and are likely to keep going on, in a reckless disregard of the first principles of good farming, till the Hessian fly, or some other malady, shall *drive* them to a better system. In some cases the manure was increased *ten-fold!* And so it may be increased upon more than half the farms in our state. It is vegetable and animal matters—it is dung, that feeds our crops, and makes our grain, and meat, and money. There is another fact to which we would call the attention of the advocates of *fermented* manures. Mr. L. speaks of a compost of yard dung and turf. Whence the utility of this mixture? Why cart turf first to the yard, and afterwards to the field? For the very plain reason, that while mixed with the dung in the compost, it became enriched by the gases—the volatile parts of the manure—given off in the process of fermentation, and which would otherwise have been scattered to the winds, and their fertilizing properties lost to the farm.

Mr. L. describes various experiments made with green and drift sea-weed, with the compost, and with mud and fish.

The green sea-weed is thrown into the hog-yards, with some dirt or turf, and being trodden and mixed by the hogs, is in a few weeks fit for use, and is applied alike to small grains, or to corn in the hill.

The drift sea-weed is spread in a dry state upon wheat grounds, directly after sowing, with good effect; it is also used as litter, or manufactured into dung by the pigs, in the pen. One man thus made 20 tons in a year, worth $20, with two hogs. Mr. L. suggests that a similar economy may be effected by persons living remote from the sea, by putting in the pen the fresh grass growing on flats and in rivers, and adding turf or dirt, and any vegetable not fit for fodder. The suggestion is a good one. Marsh lands and water may thus be made to give back the riches which are constantly flowing into them from the higher grounds.

The dung for the compost is carted from the yard *as soon as the winter foddering is over*, and mixed in alternate layers with the turf, the turf or dirt forming a thick covering to the pile, to keep the sun from the dung. Nothing is said of making compost with fermented dung.

The mud manure is the vegetable matter which is washed into streams, mixed with a portion of earth. It is exposed to a winter's frost, which pulverizes it. It is then usefully applied as a top-dressing to grass or wheat. Its value must depend upon the proportion of vegetable matter with which it abounds.

The fish, which are taken in great abundance, are used in dunging corn in the hills, are spread upon grass grounds, 15 inches apart, or made into a compost with earth, in the proportion of one load of fish to four of earth. Fifteen loads of the compost are found sufficient for an acre of poor land, which will in consequence give 30 bushels of wheat. Here we must state another fact, and a conclusive one, in confirmation of our theory, that the gases evolved by fermenting manure are a valuable food for plants. *Plants* can live upon air. We will quote Mr. L.'s words:

"Mr. Glover relates a circumstance which is curious. He made a heap, composed of those fish and earth, in the manner above related, near a fence where a field of wheat was growing on the opposite side. The wheat near the heap soon changed its color, and grew luxuriant, and at harvest yielded nearly double the quantity to the other parts of the field. He is confident the wheat could derive no nourishment from the heap or compost, by its being washed by rains to the ground on the other side of the fence, where the wheat grew, and could be effected *only by the effluvia arising from the putrefaction of the fish, and absorbed by the leaves of the wheat.*" Vol. I. p. 67.

RAISING CLOVER SEED.

Suffolk county, we are informed by Mr. L'Hommedieu, sent to market, 47 years ago, more clover seed than all the rest of the state. It was not uncommon for a farmer to market 30 bushels in a year. The best soil for producing seed, says Mr. L. is a light sand or loam. The seed was collected both from the first and second crop, but the largest quantity was taken from the first. When intended for seed, only three or four pounds were sown upon the acre,—upon land yielding ten bushels of wheat or rye. This thin crop was not considered profitable to mow, but standing thin the heads were well filled with seed. When about one-half of the field had changed its color, by the drying of the clover heads, they then began to gather the seed, by means of an instrument drawn by a horse, and guided by a man or boy. This machine consisted of an open box, about four feet square at the bottom, and about two feet high on three sides. "One part," says Mr. L. "which we may call the fore part, is open; on this part is fixed fingers similar to the fingers of a cradle, about three feet long, and so near together as to break off the heads from the clover stocks, which are taken between these fingers. The heads are thrown back into the box as the horse walks on. The box is fixed on an axle-tree, supported by two small wheels of two feet in diameter; two handles are fixed to the box behind, by which the man or boy, at the same time he guides the horse, lowers or raises the fingers of the machine, so as to take off all the heads from the grass. As often as the box gets full of heads, they are thrown out, and the horse goes on again." With this machine, a boy and horse would gather the heads from five acres in a day. On rich lands no seed was taken from the first crop, it being too luxuriant to seed well. The heads were placed in small cocks in the field, and left there two or three weeks, in order that the husk might rot, and the seed be the easier extricated. This process is now superseded by the use of the modern clover mill. Mr. L. had known the produce to be as high as 4½ bushels the acre.

BLIGHT IN PEAR TREES.

"The Pennsylvania Horticultural Society, anxious to promote the discovery of a preventive for the disease usually termed *blight* in pear trees, offers a premium of FIVE HUNDRED DOLLARS, to be paid to the person who shall discover and make public an effectual means of preventing its attack. The premium not to be awarded until after the expiration of three years from the publication of the preventive, or until the society shall be fully satisfied of its efficacy. Communications on the subject may be addressed, per mail, to *David Landreith*, Cor. Sec'y, Philadelphia."

The first notice that we find on record of the blight in the pear tree, and which also extended to the apple and the quince, is in a letter from William Denning, Esq. written in 1793, and inserted in the first volume of the Transactions of the Society for the promotion of Agriculture, &c. p. 185. It was first observed by the writer in 1780, at his place in Dutchess, now Putnam. "I observed," says he, "the young, remote and tender shoots first affected; I traced the malady to the spot where the sap first ceased to flow, but could discover no external cause. On the second year, I found the boughs wounded deeper, and progressing yearly, the trees continued to sicken, and in six or seven years died." Mr. Denning supposed he had detected the cause of the blight in a worm or borer, which he found in the wood of the tree near the ground; and he bared the collar of some trees to the frosts of winter, with partial benefit as he supposed. The worm found at the root was probably the *saperda bivettata*, described by Say, in a previous volume of the Cultivator, in a letter to the conductor, and was not the cause of the blight.

The earliest personal knowledge we had of the blight was in 1802; and during that and the few subsequent years, it destroyed very many trees. The disease seemed then to disappear, with us, until about 1824–5, when it again appeared, and continued till 1831, since which we have not noticed it among our trees. We are inclined to believe that the blight has appeared periodically, at intervals of ten to fifteen years, and has continued four or five years at each return.

The first step towards discovering a preventive is to ascertain the cause. The popular notions that the blight is caused by lightning or the sun's rays, is too unphilosophical to be entertained for a moment. Like causes will always produce like effects; and as these alleged causes are continually operating, they cannot be the true ones. There is little doubt but the blight is caused by an insect, which injects a poison into the elaborated sap of the tender branches; and it is probable that the species is one which assumes its destructive form only at intervals of some years, like the locust. In 1831, we made a topical application to our trees of chloride of lime, in a diluted form, which we supposed might, by affecting the sap, render it obnoxious to the insect, or prove an antidote to its poison. The disappearance of the disease, at that period, prevented our determining on the efficiency of the application. Professor Harris has ascribed the blight to an insect called *scholitus pyri*.

MR. GARBUTT'S PREMIUMS.

Mr. **William Garbutt**, a very intelligent, excellent and enterprising farmer, of Wheatland, Monroe, has instructed us to offer, in his name, the six following premiums. "I have long wished," says Mr. G. in his letter to us, "that cultivators would exhibit, through the medium of agricultural journals, their methods of farming, together with the amount of labor and the product of their farms. It would open an immense volume of useful knowledge, and give a powerful impulse to agricultural improvement. With the view of furthering so desirable an object, I will add two classes of premiums to your list, viz:

1. For the best managed grain and grass farm, grain being the staple, of not less than 100 acres,	$10
2. For the second best,	7
3. For the third best,	5
4. For the best managed grass and stock farm, of not less than 150 acres,	10
5. For the second best,	7
6. For the third best,	5

As Mr. Garbutt's object is to elicit and disseminate useful information among his brother farmers, for the common good, the better to produce the desired result, he imposes upon competitors for the above premiums, the following conditions:—

1. That the competitor shall live upon and manage his farm, either as owner or occupant.

2. That the statement of management shall embrace a period of three years.

3. That such statement shall exhibit the character of the soil, the description of the crops and stock, the mode of management, estimated value of all the crops and stock, mode of managing manures, expense of labor, &c. In short it must exhibit a true account of the profits of the farm for the three years, in such detail as to enable others to profit by the examples of the successful competitors.

While upon this subject, we venture to suggest to land holders, and others who feel a deep interest in the substantial improvements of our country, whether they would not subserve their individual as well as the public interests, by following the patriotic example of our worthy friend Garbutt, in offering premiums for improvements in husbandry. These will do more to enhance the value of real estate, and to promote the common weal, than the multiplication of banks, or the mad schemes of speculation, which have raised thousands to imaginary opulence, but which, in reality, have reduced tens of thousands to absolute ruin. Productive industry, after all, is the true source of national wealth and greatness; and the more we enlighten and honor labor, the more we shall have of it, and the better it will be for us.

BREEDS OF SHEEP.

The breeds of sheep in the United States may be comprised under the three following heads, viz:

1. *Short and fine wooled*, which embrace the Merino family, including the Saxons, which are reared principally for their fleece, a necessary and exclusive material in all our fine cloths. The average weight of fleece may be stated at 2½ lbs. and the length of the staple 2½ inches.

2. *Middle wooled.*—This class may be considered as embracing our common sheep, and the South Downs of Great Britain. These are raised both for fleece and carcass, the quality of the mutton being generally considered better than that of either the short or long wooled kinds, and the fleece heavier, though coarser, than that of the former. The average length of the wool is stated at 3½ inches, and weight of fleece at 3½ and 4 lbs. The fleece of this class is employed in the fabrication of common and coarse cloths, flannels, &c. Most of the flocks in Britain come under this denomination,—the wool used for their fine cloths being almost exclusively the product of Spain and Germany.

3. *Long wooled*, which embrace the Leicester, Cotswold and Lincoln breeds. These afford the material for worsted goods, hosiery, &c. and although these sheep give a heavy fleece, often reaching to nine and twelve pounds, they are principally reared for the sake of their carcass—for their great weight and early maturity for the butcher.

As this latter class are of but recent introduction, and as their fleece is likely to come in demand as manufactories of worsted goods are multiplied among us, a few remarks in relation to each of the long wooled kinds above named, may not be uninteresting.

The *New Leicester* breed are an improvement, made by the celebrated Bakewell, after long and persevering efforts, and perpetuated by his disciples, by breeding only from select individuals. "Mr. Bakewell perceived, that smaller animals increased in weight more rapidly than those of very large size; and that they consumed so much less food, that the same quantity of herbage appplied to feeding a larger number of small sheep would produce more meat, than when applied to feeding a smaller number of large sheep which alone it would support. Acting upon these observations he selected from the different flocks in his neighborhood, without regard to size, the sheep which appeared to him to have the greatest propensity to fatten, and whose shape possessed the peculiarities which he considered would produce the largest proportion of valuable meat, and the smallest quantity of bone and offal. In doing this, it is probable he was led to prefer the smaller sheep, still more than he had been by the consideration above stated, because it is found that perfection of shape more frequently accompanies a moderate sized animal than a very large one." This quotation furnishes a valuable hint to American breeders, who are too prone to graduate value in proportion to size. Mr. Bakewell studied to improve the value of the carcass, deeming the fleece a secondary consideration. His improvements became so manifest and popular, that he was able to let his rams at two and three hundred guineas a season, and in one instance he let a single sheep for a thousand guineas the season. In 1793, Mr. Paget, an associate of Bakewell, sold at auction, a flock of 130 new Leicester ewes for £3,200, (= to $14,108,) averaging £25 16s. 11d. each, or about $108.

"No other sort of sheep, (says the Farmers' Series, from which we draw the preceding facts,) possesses so great a propensity to fatten—no other sort of sheep is fit for the butcher at so early an age—and although they are not calculated for the poorest soils, no other sort of sheep, in soils of a moderate or superior quality, is so profitable to the breeder." The weight of these sheep, at a year and a half old, is stated at from 24 to 36 lbs. per quarter. The staple of the wool may average seven inches,—the weight of the fleece is seven to twelve pounds, and sometimes more.

The late Christopher Dunn, of this city, was among the first to introduce among us the New Leicester or Bakewell sheep, and they yet maintain their purity and value upon the farm of his son. Numerous importations have been since made, and the New Leicesters are now found in almost every section of our country. Their mutton is exhibited every spring in our market, and surpasses all others for fatness.

The *Cotswold* breed has recently been sensibly improved by mixing with the new Leicester—the carcass is less, but better formed, and the weight of fleece is somewhat diminished. The quarters of the improved Cotswold weigh from 20 to 40 pounds, and the fleece 7 to 8 pounds. We have not heard of but few of these sheep reaching our country.

The *Lincolnshire*, like the Cotswold, have undergone recent improvements by a cross with the new Leicesters. These sheep are particularly adapted to fenny or marshy lands, where they attain a heavier carcass and fleece than they do on uplands. Their average fleece is 8 or 9 lbs. and the staple is from 9 to 12 inches in length. Two of these killed at Lincoln market in 1827, gave fleeces that weighed 12 lbs. each; each of the fore quarters weighed 73 pounds, and the hind quarters 57½ pounds. An importation of Lincolns was noticed in a late Cultivator, by Mr. Clift, of Carmel, Putnam county.

Besides the sorts we have noticed, there are various crosses among us, of the Saxon, Merino and Leicesters with our common flocks.

We think, that however the preference may be given, near our large market towns, to mutton sheep, the fleece is likely to become the great object with the sheep farmer in the remote inland districts, because this marketable product will better bear the expense of long transportation than the carcass, and is likely to command a more regular price. The relative value of the different kinds must be a matter of calculation with the farmer. The weight of fleece ordinarily diminishes as it improves in fineness, while the latter is the general criterion of value.

A microscope has recently been constructed by Powell, of London, of such extraordinary power, as to show the serratures in the fibres of wool, which are found to increase in number much in the proportion to fineness. The writer on sheep husbandry, in the Farmers' Series of Useful Knowledge, thus describes the appearance of wool under this new microscopic power.

"The fibre thus looked at assumed a flattened riband-like form. It was of a pearly grey colour, darker towards the centre and with faint lines across it. The edges were evidently hooked, or more properly serrated—they resembled the teeth of a fine saw. These were somewhat irregular in the different parts of the field of view, both as to size and number. The area of the field was now ascertained; it was one-fortieth of an inch in diameter. By means of the micrometer we divided this into four, and we then counted the number of serrations in each division. Three of us counted all four divisions. The number was set down privately, and it was found that we had all estimated it at fifteen in each division, making 2,400 serratures in the space of an inch, all of which projected in the same direction, viz. from the root to the point. Then we endeavored to ascertain its actual diameter, and proved it to be 1-750 of an inch." The fibre was from a Merino fleece.

"We next endeavored to explore the cause of this serrated appearance, and the nature of the irregularities on the surface, which might possibly account for these tooth-like projections; we therefore took another fibre, and mounted it as an opaque object. It presented a beautiful glittering column, with lines of division across it, in number and distance seemingly corresponding with the serrations. These examinations afforded a satisfactory solution of the felting principle. The fibres can move readily in a direction from root to point, the projections of the cups [or serratures] offering little or no impediment, but when they have been once involved in a mass, and a mass that has been pressed powerfully togther, as in some part of the manufactory of all felting wool, the retraction of the fibre must be difficult, and in most cases impossible."

With the above instrument, an examination was instituted, of the relative fineness and felting properties of the wool of different kinds of sheep, the felting properties being indicated by the number of its serratures. The following are some of the results:

	Fibres to an inch.	Serratures to do.
Saxon,	840	2,720
Merino pick-lock,	750	2,560
Common Merino,	750	2,400
South Down,	660	2,080
Leicester,	500	1,860
Lincoln,	480	1,280
Wool of the rabbit,	1,000	2,880
do. of the seal,	1,250	480

There can be no doubt, continues our author, that wool consists of a central stem or stock, probably hollow, or at least porous, and possessing a semi-transparency not found in the fibre of hair. From this central stalk there springs, at different distances, in different breeds of sheep, a circlet of leave-shaped projections, resembling leaves, or scales, which give to the wool the power of felting, and regulate the degree in which that power is possessed.

We annex cuts below, showing the appearance of the fibres of wool, when subjected to this new microscopic power, both in its transparent and opaque forms.

Fig. 8.

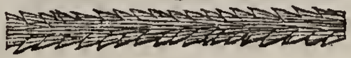


Fig. 10.

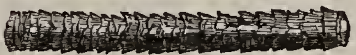


Fig. 9.

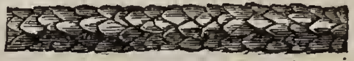
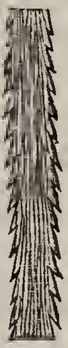
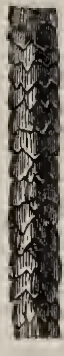


Fig. 11.

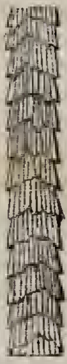
12



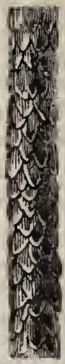
13



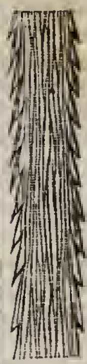
14



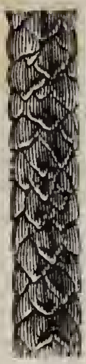
15



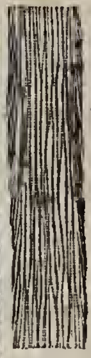
16



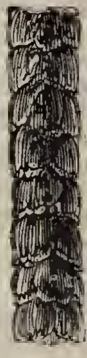
17



18



19



8. A fibre of Saxon wool as a transparent object. 9. do. opaque.
10. do. of picklock Merino. 11. do. opaque.
12. do. of common Merino. 13. do. opaque.
14. do. of South Down. 15. do. opaque.
16. do. of Leicester. 17. do. opaque.
18. do. of Lincoln. 19. do. opaque.

EXPERIMENTS IN RAISING LUCERN.

We find in the Transactions of the Society for the Promotion of Agriculture, &c. two communications from Chancellor Livingston, giving the details and results of fourteen experiments made in the culture of lucern, upon various soils, and in connexion with various crops. The results were various. In some cases the produce was estimated as high as six tons four cwt. the acre, in cured forage; and five crops were taken in a season, two to feed green, and three as hay. In other cases, upon stiff or wet soils, or with grain that lodged, the results were unfavorable. These experiments enabled that intelligent gentleman to lay down some definite rules for our guidance in the culture of this valuable crop, and among them the following:

"1. Never to sow on ground that is not perfectly pulverized.

"2. Not to sow till the earth has acquired a degree of warmth friendly to rapid vegetation, that is, not earlier than the month of May.

"3. To sow with no crop that will probably lodge.

"4. If sown with buckwheat, to apply no gypsum or other manure till the buckwheat is off."

The first course of experiments was made in 1793. The Chancellor closes this communication with expressing his opinion, that lucern is better adapted to our climate than clover; that it exacts no more labor; that it leaves the soil much better than it found it; and that it is perennial in its duration—having remarked two plants in a common pasture which had defied the bite of cattle for upwards of twenty years.

The second communication details his in experiments 1794, and closes with further suggestions as to the habitats and best mode of cultivating the lucern, viz: -

"That it appears to be full as hardy as clover, but, like it, to delight in a warm, dry soil, though it will flourish in a moist clay—subject, however, to the same casualties in open winters, when both will be thrown out by the frost.

That "when very young, it requires a natural or artificial warmth in the soil, otherwise it languishes, and when the weeds and natural grasses come up it is unable to contend with them. That it should be sown in a warm dry soil, in tolerable heart;" that he should prefer for it, ground that had been manured and bore a potato crop the preceding year. That the seed may be sown the first of July. That if the crop becomes yellow, it should be immediately mown, and that it will come forth again free from disorder. That the time for cutting for soiling, is whenever it will fill the scythe—should be cut the first year, to destroy weeds. That it may be fed down by any kind of cattle with as much safety as clover, &c. He urges upon young farmers, not to be discouraged in its culture by older ones, who tell him they have tried it, and that *it will not do;* but to persevere, and they *will* succeed in rendering it profitable.

We have had considerable experience in raising lucern during the last sixteen years. Until recently we have found it a valuable crop;—having been enabled to feed six or seven cattle upon an acre of it during the summer months. For two or three of the last years our efforts to cultivate it have been less successful, on account of the severity of our winters, which has destroyed many of the plants, and of the vexatious intrusion of other grasses, particularly of the spear-grass, (*Poa pretensis.*) We think a potato or ruta baga crop, manured and kept clean, is the best crop to precede lucern; that it should not be sown before the middle of May; that there should be sixteen pounds of seed sown to the acre, and that if put in broadcast, winter rye, at the rate of a peck to the acre, is the best grain to sow with the seed of the lucern. We design to make an experiment in cultivating it in drills, the mode generally adopted in France, and to keep the crop free from weeds and grass with the cultivator, for which Van Bergen's machine is admirably adapted, by merely taking out the forward and central share, and dispensing with the wheel.

PROFITS OF BEET CULTURE.

We draw the following facts from a "Notice on the Beet Sugar," by Mr. Church, of Northampton:

That from eighteen to twenty tons of beets may be ordinarily grown upon the acre; and that twenty tons, on the supposition, and a reasonable one, that the roots yield eight per cent of sugar, will give 3,200 pounds sugar, and hence, that a given piece of land will yield more than twice the weight of sugar that it will of wheat.

That sugar, of ordinary quality, may be furnished by the manufacturer, at four or five cents per pound.

That the consumption of sugar in France, before it was produced there from the beet root, averaged *one* pound per head per annum, and now averages *three* pounds per head; that the consumption in Great Britain amounts to *sixteen* pounds per head; and in Cuba to *one hundred and twenty* pounds per head, per annum.

We see from these facts that the beet may be made more profitable than the wheat culture;—for, if the roots are sold to the manufacturer, at eighteen cents per cwt. twenty tons, the assumed product of an acre, would bring $86. We also learn, that when the culture and manufacture are well established among us, indigenous sugar may be brought within the means of the most indigent, and sold cheaper than flour is sold at the present day. Sugar is more nutritious than flour, and, when extensively used, will abridge very much the consumption of solid food, and be withal more healthy.

FACTS WORTHY OF CONSIDERATION.

Five millions of agriculturists in Great Britain furnish subsistence for her population of sixteen to eighteen millions of people. Great Britain imports but a small amount of provisions.

Twelve millions of agriculturists in the United States *do not* furnish subsistence for a population of sixteen millions. We import bread stuffs, now, from almost every country of Europe.

Whence this mighty difference? It is not owing to the natural inferiority of our soil, nor to the inferiority of our laborers in physical strength and industry. In both these we claim to have the advantage of the old continent;—but it is owing to the neglect of our legislators and statesmen, to patronize and aid this great primary branch of labor—it is for want of that aid which government and science give there, and which they do not give here. *There* we see established schools of agriculture, boards of agriculture. *Here* we see neither. *There* agricultural science constitutes a branch of instruction in the primary schools, and practical instruction is dispensed in those of higher grades. *Here* our schools do not afford instruction in either the science or practice. *There* large sums are disbursed from the public treasury, to make agricultural surveys, to publish standard works on husbandry, and to call forth genius and skill, by liberal rewards and distinctions. *Here* government expends nothing for these objects. *There* agricultural improvement is promoted from state policy. *Here* it is neglected—because it has no *quid pro quo*—nothing to offer to gratify the short-sighted cupidity of party. Our statesmen are so greedy for the sixpence that is close to their eye, that they do not see the dollar which beckons them from the distance. The landed proprietors of Europe generally possess intelligence and influence, which they effectually exert, in combined effort, to increase the products of their estates. *Here* the proprietors are too often uninformed and spiritless, having no concert, and tamely submitting to the miserable pittance which their public servants may find leisure or inclination to dole out to them.

THIRTY YEARS AGO,

What was the state of our manufactures and mechanic arts compared to what they are at the present day? What art has remained stationary? Manupilation has given way to machinery—science has shed her effulgent light upon processes which were before obscure, tedious and uncertain—and inventive genius, roused from its torpor by the spirit of improvement, has been actively at work, in perfecting the mechanic arts. Where is the man who, in any of these arts, follows, in his business, the practice of his father, that is successful in his calling? All is changed—all is improved. And how fares it with agriculture? This primitive art, too, has felt the impulse of improvement, though yet in a partial degree. Some portions of her labors have been blessed with an abundant increase, while other portions, practising on the model of "our fathers," remain at a fearful distance behind the age. In most parts of northern Europe improvement has progressed, and is progressing. English husbandry has been greatly improved, and Scotch husbandry still more so. France is in the progress of rapid improvement in her agriculture; and the agricultural schools of Fellenbergh and Von Thaer are fast diffusing a knowledge of the science and of the best practices of husbandry over the wide-spread German empire. With us, while some districts, and many individuals, have made creditable advances in agricultural improvement, the mass of our farmers, we regret to say, are just where they were *thirty years ago*, apparently unconscious, that while they have remained stationary, the world about them has been continually advancing in intelligence and improvement. Much has been done, and more remains to be done, to improve our farming; the spirit of inquiry and investigation is abroad; much useful information is being diffused in our agricultural journals, which are increasing in interest, in numbers and in circulation; and it is hoped that our legislators will ere long find leisure to turn their attention to this great interest, and assist to elevate it to the rank to which it belongs, as well in a political as in a pecuniary point of view. For agriculture, in reality, constitutes the foundation upon which the fabric of our social, moral and political institutions are based, and upon which they must ever depend for support and prosperity.

School Libraries.—Massachusetts has passed a resolve, by a unanimous vote in the lower house, that each school district in the state, shall raise thirty dollars the first year, and ten dollars annually thereafter, to establish common school libraries. Massachusetts seems determined that her school districts, like her sons, shall *learn to take care of themselves*, and that her laboring, wealth producing classes, shall be *well* instructed. She has the best schools, though she had no common school fund till 1834.

Topping Corn.—N. Weld has given us, in the Silk Culturist, a notable illustration of the loss farmers suffer in topping their corn. From accurate experiments he ascertained, that his crop was diminished one-fifth when he topped the stalks at the usual time; or that the yield of grain on the topped corn was as 100, to 133¼ on the untopped corn. We still lack experiments to show the loss, if any, which results from cutting up the corn, at the usual time of topping.

OPINIONS OF OUR NEIGHBORS.

We extract the following from the Massachusetts Agricultural Repository and Journal. It conveys a merited censure upon the indifference of our legislators to the great interest which feeds and enriches our state. It is embraced in a review of the third and last volume of the Memoirs of the Board of Agriculture of the state of New-York. We will only remark, what most of our readers already know, that Massachusetts still keeps up her liberal appropriations for the support of her agricultural societies, and that she is now providing for an *agricultural* survey of the state.

"The volume in question," says the review, "is, both in matter and execution, superior to most of the publications which have appeared in our country, on the subject of agriculture, and we feel deep regret in learning, that this volume will close the labors of the Board of Agriculture in that state. From what adverse or unpropitious causes, whether from prejudice, or false economy, the state of New-York should have withdrawn its patronage, at a moment when, from the volume before us, a most intelligent and enlightened spirit had been excited, it would be difficult for us to divine, and improper in us to discuss.

"*If any state in the union was under deep obligations to take the lead in encouraging a more intelligent and scientific mode of agriculture, New-York was certainly that state. Its means are not only much greater, but its influence and example were of the greatest weight.*"

Vitality of seeds.—Prof. Henshaw, lately made experiments with seeds of an acacia, to determine how far their vitality was impaired by heat. He put some of these seeds into boiling water; others he actually boiled 1½, 3, 6 and 15 minutes; he planted them afterwards in the earth, and they all germinated and grew, in half the time that seeds did which had not been steeped or boiled. On opening an ancient British tumulus, some small seeds were found in the stomach of a human skeleton, which must have been eaten and lain there two thousand years. Some of these were planted in the horticultural garden, by Prof. Lindley, germinated and have produced fruit. They prove to be the common raspberry.

Cotton seed oil.—Prof. Olmsted estimates that the value of the surplus cotton seed of the United States, if converted into oil, cannot be less than ten millions of dollars. He also estimates that it is capable of producing 9,668 millions of cubic feet of gas, more than enough to supply 24 such cities as London, and equivalent, for this purpose, to 792,000 chaldrons of coal. These discoveries are among the fruits of science, applied to the arts, and to human comfort. The cotton seed oil constitutes an excellent lamp oil, and serves well for painting. The oil cake is a capital feed for farm stock. The seed of the cotton has heretofore been considered of little value, except for manure.

To prevent abortion in fruit trees.—A respectable gentleman assures us, that he has strewn plaster upon his fruit trees, for successive years, when in bloom, as a means of inducing fecundity, with unvarying success. The discovery was the result of accident. A tree which had flowered freely, but fruited shyly, had by accident got a dusting of gypsum while in flower, and it was loaded with fruit. The male and female organs, in most fruits, are in the same flower; and it is well known, that if heavy rains or strong winds occur when trees are in bloom, they seriously diminish the fruit, and often destroy it. The reason of this is, that the pollen, which should fecundate the female organ, is prematurely blown away or destroyed, before it has performed its office. The gypsum *may* prevent this.

Harrowing Grain in Spring, is *now* particularly recommended, where the grain is not too far advanced, in order to counteract the effects of the recent changeable, or freezing and thawing weather. To the proofs already given of the efficacy of this practice, we add the testimony of William Merrifield, a respectable farmer of Guilderland, who has followed it for six years. He says it has resuscitated crops that promised nothing before harrowing, and rendered them highly productive; and that where a part of a field, and that the poorest, has been harrowed, the product was, in one case, five-fold that of the unharrowed part.

Agricultural Education in France.—The king of France has issued an ordonnance upon the report of the minister of commerce, directing the establishment of a royal conservatory of arts and trades, and a system of public and gratuitous instruction for agriculture. The instruction will be in three courses: 1st. on cultivation; 2d. agricultural construction and mechanics; 3d. agricultural chemistry.

CORRESPONDENCE—CONDENSED.

AMBLER'S MOWING MACHINE.

We have received a commuication from Mr. M. K. Beale, one of the proprietors, we believe, giving information in regard to this machine. Although, contrary to rule, we are subjected to postage, we will give the substance of the communication, for the benefit of the proprietor, and the information of the public.

In answer to queries supposed to be put, it is stated,—

1. That the power required to use the machine is that of two horses, probably from 700 to 900 pounds.
2. That it will cut fifteen to twenty acres of grass per day, and may be used to cut lodged grain to advantage.
3. That it requires but one person to tend it.
4. That it can be readily packed or boxed for transportation.
5. That it weighs about 500 pounds.
6. That it is not more liable to get out of order than common horse powers.
7. That it cuts and leaves the grass erect on the ground where it grew.
8. That it will operate better on stony or uneven ground, than the revolving hay rake.
9. That it cuts lodged grass finely. And,
10. That the cost is $130.

Beale and Griswold are the proprietors of the patent for all the country east of the Hudson, and machines, or rights, may be obtained by applying to the writer, M. K. Beale, Spencertown, Columbia county, New-York.

MEADOW AND PASTURE GRASSES.

Kingsbury, March 24, 1837.

Dear Sir,—Information is wanted with regard to the most suitable grasses to be sown on such a quality of soil, [flat, some of it wet, clay, with an occasional admixture of loam and peaty mould,] both for meadow and pasture. I had selected the most nutritive kinds from the table of grasses in your third volume, with the view of inquiring their fitness for my purpose, and where the seeds may be obtained, viz. tall fescue, spiked fescue, hard fescue, lucern, meadow fox-tail and sweet vernal grass. I wish also to inquire whether skinless oats prove profitable in this climate, where seed can be obtained, and at what price. JER. FINCH.

Remarks.—We do not know that seeds of any of the fescue grasses named are for sale in our seed stores. The lucern may be had of Thorburn, in this city, and the seed of the meadow fox-tail and sweet scented vernal grass in New-York. The lucern will not answer on Mr. Finch's soil; it requires a dry bottom and light soil. The meadow fox-tail and sweet scented grass, are sown for their early feed, which, though nutritive, is small in quantity. They give but little to the scythe. We should recommend the timothy, herdsgrass, and clover, for hay, with an admixture of orchard or tall meadow oat grass for pasture. Although it does not suit to cut the clover and timothy together, for hay, the former is but a biennial, and will leave the ground principally to the first two kinds after the first mowing. The grass seeds we recommend are all for sale at Thorburn's, who has also the skinless oats, which he sells at

The public confidence in this grain has been rather shaken by the results of the last crop.

☞ Mr. Alexander Smith, seedsman, and our agent in Broadway, New-York, offers to import, to order, any kind of foreign grass seeds that may be desired.

Troy Grove, Ill. Feb. 23.

Your papers are well liked in this settlement, and I have no doubt but hundreds in Illinois would subscribe, if they were acquainted with it. I wish for information on the subject of hedges, and in planting and raising timber. [*See last volume.*] Our prairies are so large, that the cold winds which sweep across them kill young trees that are set out, but they will grow in the groves, or on the east or south sides of them, where the winds are less severe. It is frequently 20 miles across the prairies, and nearly level, and unless we can raise timber and live fences, our grand children will be in a bad fix. If you have any knowledge of the white mulberry, or any other kind of mulberry, making fence that will keep out cattle and hogs, you would confer a favor by publishing it. Mulberry, chesnut and locust grow well for one or two years, and then get killed by the frost. L. KELSEY, Jr.

Remark.—The only mode of succeeding in a plantation, under the difficulties above enumerated, seems to be, to begin on the west and north sides with some of the most hardy timber trees, as beech, birch, &c. and when so far advanced as to serve as shelter, to plant the more tender kinds on the leeward sides. This mode has succeeded in south east Russia and in Scotland, and thus lands before waste, have been rendered fertile and productive. The beech is extensively used in Flanders for hedges. Are there no native thorns (*craetagus*) in Illinois—is not the honey locust indigenous there? These are suitable for fences. The only mulberry that will be likely to withstand the prairie winds, we think, is the red or native American.

Canada thistles may be exterminated, by being cut three times in a season, *i. e.* in June, July and August, just below the surface of the ground. I have ascertained this from practical experience.

IRA ORMSBY.

Mr. O. asks us, if ruta baga will do well, for several years on the same ground, providing it is well manured? We answer, it will *do better* on different pieces, provided the soil is dry, light and well manured. There is no crop, not even garden products, that does well, if repeated in consecutive seasons, upon the same field.

CURE FOR THE HOVEN.

Mr. John Daniels, of North Hartland, Vt. sends us the following directions for saving cattle that are choked, or hoven, by eating to excess clover or other green food. It is worth trying, and we have little doubt will be found effectual. What particularly recommends it is, that it is not likely to do harm, while the remedy is within the reach of every farmer.

"To one pint of old sharp vinegar, add one half pound of hog's lard, incorporate them together over a fire; add enough more vinegar to reduce the heat, so that it will not burn; put into a bottle and turn down the animal's neck. The above is a dose for an ox."

Cure for Hoven in Cattle.—Give to the animals rye straw, which it is said they will eat greedily.—*Com. by W. Keese, Essex co.*

Cure for the Horn-ail.—Take of good vinegar and spirits of turpentine one gill each, of salt and pepper, red or black, half a gill each, simmer these together, and apply them as warm as your hand will bear between the horns, winding a cloth round the horns near the head, in order to retain as much of the compound as may be. One application is sufficient in ordinary cases; but where the case is obstinate, a repetition may be necessary. I have tried this often, and have never failed of performing a cure, and think it far preferable to perforating the horn, as is the practice with many.

IRA GRANT.

SHORT HORN CATTLE.

We are requested to advertise three short horn bulls and two calves, of approved pedigree; but as it does not comport with our custom to publish advertisements in this sheet, we barely state, that the cattle may be seen at the farm of A. Ferguson, Esq. three miles from Burlington Beach, Upper Canada, and that for terms, &c. address Mr. Ferguson, Nelson post-office, U. C.

NOTICES TO CORRESPONDENTS.

Angle-worms.—The inquiry is made by two subscribers in Appling, Jefferson, "how they can destroy angle-worms in their garden?" We were not aware that these worms preyed on any sort of vegetation, or that they were in any way injurious; indeed we supposed they served a beneficial purpose: for Curtis, who has given us an excellent treatise upon grasses, remarks, that these worms, by "throwing up great quantities of earth, contribute greatly, in meadow lands, to prevent the growth of moss, as well as afford fresh soil for the roots of plants to shoot into, and for seeds to vegetate in." He calls them "the natural diggers and dungers of land; worm casts being nothing more than the dung of worms."—But if our subscribers are determined to exterminate these "diggers and dungers," they can do it, it is believed, in the way that other ground worms are destroyed, that is, by sprinkling the ground sufficiently with soot, or salt, or brine; and probably lime or ashes may suffice—and a strong decoction of walnut leaves is said to be certain. We do not say this from experience, but on respectable authority.

Artesian Wells.—We have had several inquiries as to the expense of boring for water, of the augurs and implements, and where the latter can be purchased. The implements, we understand, may be had in this city. The expense of boring will very much depend upon the depth to which it is carried, and the material which is to be perforated—the expense increasing the lower the augur is carried. The boring is continued to the depth, sometimes, of 500 to 1000 feet. We have had no practical experience in the matter; but we find the process thus described:—The soil is to be perforated with an iron borer; a wooden or metal pipe is then to be placed in the hole, and driven down; after which the boring is continued, and as it progresses the pipe is driven further down. As the augur becomes filled with earth or pulverized rock, it is drawn up and emptied; so that, by the additions of fresh portions of the pipe, the boring may be carried to a great extent under ground, and water is obtained, which generally rises to near the surface, and often flows over the top of the pipe in a continued stream.

J. M'D. Matthews will find answers to his queries in the communication of Mr. Petrie, &c. except in relation to the corn crusher, as to which we can advise him no further than to say, that Taunton, to which he alludes, is in Massachusetts.

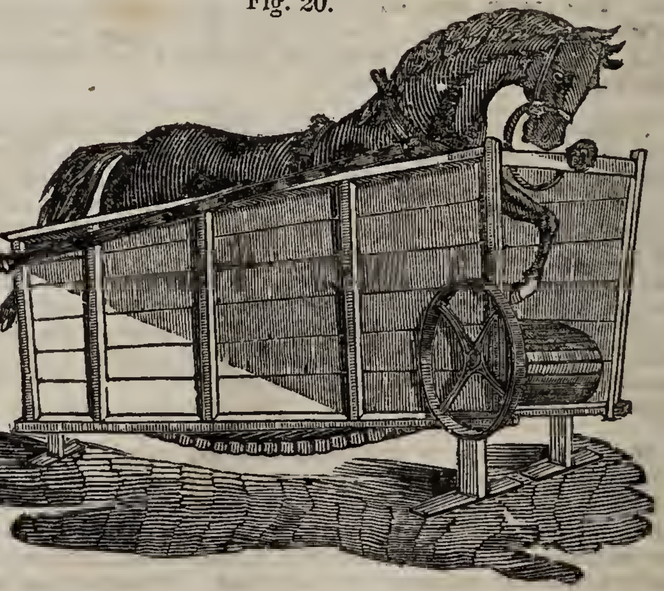
The "Good Samaritan," of Hartford, Ct. will accept our thanks for the "Winter Belmont apples," grown in Ohio, and the grafts of the same, which he sent us. The fruit is beautiful to the eye; but, as we are bound to be ingenuous in these matters, we must say, to the taste it is below mediocrity—perhaps owing to the defective state in which it came to us.

Mr. E. Thompson, of Stanford, Dutchess, asks where he can procure the potato oats? Will some gentleman, who has them to spare, favor us with his address, and note to us the price?

A. C. Howard, of Thetford, Vt. is anxious to know if certain strata of earths which he describes, afford indications of marl? We are not qualfied to answer his question; but he can readily determine if he has marl, by drying some of the earth supposed to contain carbonate of lime, and testing it with muriatic acid, or strong vinegar, either of which will show its presence, if effervescence takes place on the acid being turned upon the earth. "I have made use of plaster of Paris," adds Mr. H. "and leached ashes, for a number of years, and find they have a good effect on corn, and potatoes and clover. I have practised upon the alternating system, till I have increased the products four-fold upon some of my poorest land, with the aid of plaster and a small quantity of animal manure." A good result, and a worthy example.

GLEASON'S PORTABLE HORSE POWER,

Fig. 20.



Of which we here present a drawing, may be had by applying to W. Thorburn, seedsman, in this city—price $135. It appears, from a cursory examination, to be well constructed, not liable to get out of order, and possesses the advantage, as the proprietors allege, of driving more machinery, with less animal strength, and with fewer hands, than any machine of the kind now in use. Of this latter fact we do not feel competent to judge. The power we saw in operation was adapted to one horse, and might be applied to thrashing, sawing, or to any other stationary purpose upon the farm, or in the shop of the mechanic. The patent right for this and several adjoining counties, belongs to Messrs. Hanna and Jaggers, Valatie, Columbia county.

☞We are under the necessity of postponing or omitting many favors of our correspondents, for want of room to insert them. We contemplate such arrangements as will enable us to give a greater quantity of matter hereafter.

CORRESPONDENCE.

MR. BALL'S REMARKS.

Remarks of L. Chandler Ball, of Rensselaer, made in the Agricultural Convention, on the resolution of L. F. Allen, that the legislature be requested to aid in the agricultural improvement of the state.

I beg leave, Mr. President, to make a few remarks in support of the resolution offered by the gentleman from Erie, in the earnest hope that the united appeal of this convention in behalf of the farmers of this state, may reach the ears and the hearts of our legislators, and cause them to award to us the long delayed justice we demand. The importance of an agricultural school, and the establishment of societies for the diffusion of agricultural knowledge, where the sons of farmers, destined to fill their places, may obtain a thorough scientific and practical knowledge of their profession, is too obvious to need either argument or example to convince them of the fact. That it may be a question of policy, with those who hold the reins of government, and are basking in the sunshine of popular favor, I will not deny—it would undoubtedly thwart some of their plans of personal aggrandizement, and dissipate some of their ambitious schemes, were the farmer to receive equal advantages with themselves, and be made that high intellectual and reflecting being, which God designed him Educate the farmer, and he is no longer the tool of power, the cat's paw of artful speculators or intriguing politicians. His faculties of body and mind are innocently and profitably employed in improving the soil, beautifying his home, rightly educating his children, enlarging his own mental powers, and increasing the amount of individual happiness, and national wealth and prosperity. Keep him in ignorance, and he barely rises either, in intellect or enjoyment, above the brute creation; his life is one of toil and misery, uncheered by a ray of hope, or the prospect of a brighter day, and even his physical energies are wasted and destroyed in a vain attempt to change the laws of nature.

There is an old saying, which, though often quoted, has lost none of its emphatic meaning, or peculiar adaptation to the farming community, that knowledge is power. And if we look abroad upon the world, we shall see individuals, communities, states and empires, all acting upon this principle, vieing with each other in the depth of scientific research, and the application of their discoveries to the wants, the comforts, and the business of life. This may most truly be called the era of learning and scientific improvement. The age of chivalry, of pastoral indolence and fairy legend, has gone by. The pomp and glory of the crusaders, the renown of the victor at the olympic games, or gladiatorial combat, the deafening shouts, that welcome war's conquering hero home, and gave him a niche in the temple of the gods, these with the tilt and tournament, and gay song of the troubadour, have all passed away with the times that gave them birth; and mind, mighty and immortal mind, has become the only source of power, and the only standard of greatness. In this free and happy land, it is impossible to chain the intellect, and degrade the farmer to the standard of the feudal serf, or Russian peasant. The commanding place we occupy among the family of nations, the freedom of the press and the institutions under which we live, all conspire to elevate the people, and render this Western Republic, the chosen land of genius and of enterprise. Here the mind, subjected to no government censorship, fettered by no decree of oriental despotism, triumphs in the exercise of its nobler powers, and like the fledged eagle as he soars aloft in conscious strength and beauty, it ranges on with untiring wing, till the whole arcana of science, the wonders of creation, and the hidden mysteries of nature, are all unfolded to its enraptured gaze. But 'tis not only in the development of the abstruse sciences, that the operation of mind is seen and felt, its influence pervades every calling and pursuit in life—the bare necessaries, as well as the comforts, conveniences, and luxuries we enjoy, all flow from this pierian fountain; and it is a fact, now obvious to the meanest capacity, that in this enlightened age, success cannot be obtained in any undertaking, unless the powers of the intellect are brought to co-operate with, and diminish the labor of the hands. For instance, can the manufacturer succeed, who neglects to avail himself of the inventions and improvements which science has made in machinery, in the production of the power loom, the spinning jenny, and the steam engine? Can the artisan and mechanist gain patronage and distinction, who jog on in the path their fathers' trod, giving no thought to the advancement of intelligence among the people, and learning nothing but the principles of striking the anvil, or shoving the plane? And can the farmer, whose scientific research is bounded by his almanac and the moon, who only learns the use of such ill-adapted implements of husbandry as he may chance to inherit, along with some half tilled "paternal acres," compete with him who understands the laws of nature, the character of the soil he cultivates, the growth of plants, the importance of labor-saving machines, in short, with him who makes mind an active agent in all his operations? The condition and enjoyments of the former I will not attempt to describe. Where you have the original, a picture is unnecessary; but the efforts of the latter are crowned with a rich reward. His fields show a luxuriant vegetation, and his store house an abundant harvest; his premises wear an aspect of neatness and elegance, and his home is the abode of happiness and love. 'Tis thus, Mr. President, with all the varied occupations in which man can engage. Mind grapples mind with stern and unyielding perseverance, and he alone is victor in life's pursuits, its contests and its hopes, who brings the greatest amount of talent, and the loftiest intellect, to his aid.

While we see every other class of community impressed with the importance of these facts, and eager in the pursuit of knowledge, how is it possible that the farmers of this state can sit quietly down, without one aspiring wish, without a single ambitious hope, and content themselves with the ignoble task of ascertaining how many of the comforts of life they can deprive themselves of, and live? Why, sir, the farmers are, in truth, the bone and muscle of the country, the supporters of government, the means of wealth, and the source of power and authority. With the proper knowledge, and with concert of thought and action, nothing within the bounds of reason and honor is beyond their attainment. Who can be so happy and so truly great, as an enlightened husbandman? For him are the gorgeous livery of the earth, the sublime grandeur of the heavens, the harmony of nature, the music of the spheres! Neatness and order reign throughout his own little domain, and joy and happiness are dispensed to all who come within its borders. In the family circle, and around the hallowed fireside, meet congenial spirits, hearts void of guile and free from care, to receive new pleasures, and to strengthen by interchange of thought and acts of kindness, the ties of friendship and the bonds of love. Secure in the enjoyment of these domestic pleasures, he heeds not the whirlwind of men's passions, the gaudy tinsel of the great, the rise and fall of parties, or the wreck of nations—and rightly appreciating his advantages and means of happiness, would not exchange his humble cottage and contented mind for a kingly palace, or a conqueror's diadem.

Yet there are some, I am ashamed to say, who are willing to sell their proud privileges for a mess of pottage. But 'tis ignorance, that curse of individuals, and despoiler of nations, that rests like a mighty incubus upon the people, and holds in subjection their giant energies. Let then the farmer receive the countenance and support of government; let him be educated, and receive his share of the benefits that are flowing from the light of science and the diffusion of knowledge. I contend, sir, that there is not an occupation or a profession followed, which requires so much actual knowledge, so much scholastic learning, as the science of agriculture. I know it has been thought to be quite unnecessary for a farmer to be taught any thing more than the skilful performance of the mere mechanical part of his occupation, without even dreaming that mind had any thing to do with tilling the soil. But that day, I trust, has for ever passed. The spirit of improvement is abroad in the land, an impulse has been given to the mind, and a profitable direction to farm labor, and every day adds to the number of those, who are lending their wealth and talent to roll on the tide of victory over ignorance, prejudice and error.

Let us unite our exertions and influence, our prayers and petitions, to increase and continue this impulse, until every farmer throughout the whole extent of this vast republic, shall become thoroughly educated in every branch of science which relates to his profession. Then will he take that station in society and in government, which God and nature intended him to occupy; then will his calling become the most honorable, as it is the most useful; then will repining and want be driven from his door, and plenty with content and joy become its inmates; and then may we

> Sound the loud trump, o'er corruption's dark sea,
> The *people* have triumphed, a *nation* is free.

DRAINING—SWAMP MUCK.

Northampton, Mass. March 15*th*, 1837.

Judge Buel,—Dear Sir,—In a former communication, I remarked that I might say something on the subject of draining. You recollect I spoke of my miniature farm, in full view from my house, and gently sloping, a canal passes between them, the house being distant from it ten rods, and about forty feet elevation, gives me a bird's-eye view of what passes below. This farm, extensive as it is, (six acres) lies in common, like the rolling prairie of the west, with only one enclosure. The various crops lie side by side, parallel with the canal, north and south; a narrow swale from one to two rods in width, commencing at the canal, runs easterly, and is kept constantly in a wet or moist state by the water from it, percolating through the soil; from my elevated situation I can, from day to day, watch its effects; and in the cultivation of corn, potatoes, carrots and ruta baga, (the crops in which I have had experience,) I am entirely satisfied that the best land, by a superabundance of water, is entirely worthless for these crops at least; and by wet land, I do not mean that only, which has some three or four inches of water for months laying on its surface, with here and there a bog peeping through, on which sits perched a frog; this obviously can be good for nothing; but as is the case with mine, like a wet sponge, may be detected by the touch, or pressure of the foot. I could distinctly trace the line of wet from my house, by the meagre growth of the vegetables, through the whole season, notwithstanding this is the richest part of the ground, having received not only its equal proportion of manure, i. e. at the rate of thirty-eight loads to the acre, but the wash from the adjoining ground. The corn through this swale did not give one ear for every twenty hills; while that on each side gave over one hundred bushels to the acre. My ruta baga, yielding eight hundred bushels to the acre, on this, was hardly worth gathering. So with the potatoes and carrots. Here then is cause and effect, in which there can be no mistake; and here, in miniature, are distant fountains, issuing in springs, producing wet, boggy, useless land; here then, is enough to satisfy the most incredulous, of the importance of draining. You will take it for granted, that I shall run an *underdrain*, three feet deep, through this lot; in this you are right; and not only through this, but every like piece, on a more extended scale; thus redeeming some of the best lands, now lying a waste and blot. Indeed, I have already, the past autumn, made eighty-seven rods of underdrain, three feet at top, tapering to one and a half at bottom, three feet deep, and carefully laid with large stones, from eight to sixteen inches in size at bottom, placing them endwise, so as to leave channels for the water; on these a second size, and so on, throwing the smallest on top, which forms a good pavement, and will prevent the earth working down; over these are placed sods, turned upside down, and the remainder filled with earth; the ditch is about two-thirds filled with stone, which leaves sufficient earth on top to be uninjured in ploughing; the digging cost thirty-three to forty-two cents per rod, and laying the stone and filling up, forty-five cents, (estimating labor at one dollar per day,) making the average expense per rod eighty-three cents; for picking up and carting the stone, I make no charge, as I have stone enough near at hand, and independent of the drain, I consider it matter of economy for good tillage, to have the land well cleared of them. I have also *dug* upwards of one hundred rods more in the same manner, ready to be filled this spring. and shall continue to thoroughly underdrain all my wet lands. There is nothing, however, I have undertaken in the way of improvement, in which the public have been so sceptical, and not a few have ridiculed it outright. There are those who must see water enough run to carry a fulling mill, before they can be satisfied of its injurious effects, and are even then too indolent to dig a common ditch to take it away. Indeed, I heard one, who is called a pretty good farmer, i e. who is economical, never expending a dollar, for fear he shall not see it again, but doing every thing within himself, say, (on being advised to run a drain through a grass lot so wet that you could not mow it without standing over shoes in water,) "There are different opinions about it; some think it is better wet; that they got more grass on wet land. I have my doubts; I am not satisfied yet." Not so with me, sir; I have no doubt about it, and am as confident of success in this, as in any thing I have undertaken. I expect, the coming season, to be entirely remunerated for the expense, besides permanently reclaiming, and making first rate land of that which was mostly of little value. And why, it may be asked, have you written this article? You have told us only, that you have seen the injurious effects of standing water, and to prevent it, have made a drain. True; but even this is more than all have done; and if its effect is only to revive the subject, and lead your numerous readers to review the many excellent articles, together with the minute detail of the work, accompanied with the plates you have from time to time, given in your very useful paper, my desire will be accomplished, and others will, I have no doubt, do what I have done. The truth is, in farming, as well as morals, we need be told a thing more than once. To the most casual observer there is need enough of draining; and I would recommend all, to examine the subject and act upon it at once. I shall hereafter prepare a statement of facts in relation to the result of crops, &c from this land.

I am now in the course of some experiments with swamp muck. I have on my farm a piece of about two acres or more. from one and a half to seven feet deep. enough to enrich the whole farm. I have weighed, after drying over the fire for twenty-four hours, two hundred and forty grains of it, which, after burning, left a residuum of only twenty-two grains, giving two hundred and eighteen grains, or ten parts out of eleven of vegetable matter, or food for plants, besides the alkali, &c. in the ashes of the remaining eleventh part. I am preparing a compost of it with lime, and one also with prutrescent manure; the materials were put together last fall, are fermenting, and so far doing well. Almost every farmer with us has mines of this, better than mines of gold for the industrious. A proper application of industry here, will be found much more profitable than grinding apples for cider. Let the children gather and feed them to the stock, while the men and boys, with their teams, get out the muck.

Yours very respectfully,
H. G. BOWERS.

CHEESE MAKING.

Mr. Buel,—Sir,—I became a subscriber to your valuable paper at the commencement of its third volume, and have since perused all its numbers with a great deal of interest. You have published several communications, wishing that some one would send you some directions on the art of making cheese, which should be "founded on the writer's own experience." As none have yet appeared in the columns of the Cultivator, I have concluded to send you a few directions, which are the result of my own *observations only*, for upon actual *experience* I can say but little.

It is a surprising fact, that the cheese business has been carried on in this country so long, and to so great an extent as it has, without greater exertions to bring it to greater perfection by the assistance of science. I do not mean to call in question the quality, for I believe there are many persons in this country who are capable of making cheese of quality *equal*, and perhaps *superior*, to any foreign production. But I do not believe that any cheese maker in the country, even Col. Meacham himself, can, at all times, "accomplish the greatest possible object by the least possible means" in that art without the use of the thermometer. It is but a few years since distillers could only extract to the utmost extent, ten quarts of hydrometer proof liquor from a bushel of grain; while by the assistance of science and experiments, they now get fifteen quarts from a bushel. They too might mash, cool off, &c. by guess, without thermometers, and make just as good alcohol, but they would be the losers in the quantity. Why may not then more cheese be obtained from the same quantity of milk than is generally done? That the substance is not all coagulated is evident from the fact, that butter is made from the whey. I do not know of a dairyman in this vicinity that uses a thermometer, a guide to regulate the temperature of the milk when set, or in any part of the process. The whole of the cheese in the country, I believe, is made by guess, and consequently no other than directions founded upon *(rote)* experience can be expected.

I have been in the cheese business for the last few years, and last year I had the luck to obtain a cheese maker, whose skill and experience in the art are probably second to none in the country, and whose mode and directions are as follows: First is the preparation of rennet, which is merely soaking the rennet in water or sweet whey, which is preferable, and adding salt enough to keep it sweet; as to the quantity used in a given quantity of milk, that is altogether regulated by the strength of the rennet liquor; and as some rennets are better than others, I am unable to reduce it to a certain rule on paper; there should be enough, however, for perfect coagulation: but too much "is apt to blow up the cheese full of small holes," and it will acquire a disagreeable flavor. The evening's milk, in hot weather, should be cooled from 45 to 55 degrees of Fahrenheit's thermometer, to prevent its souring, which may be done by setting the milk, if in pans, into cold water, and if some should be in the cheese-tub; large tin coolers should be set into the milk with cool water, changing the water (if required) until the milk be cooled to the above temperature. The milk having thus stood all night, the cream should be carefully skimmed off in the morning and put into a pan. The quantity of milk heated or warmed is regulated by the temperature of the external air; for cheese is or can be made at all seasons of the year. I found by the thermometer that the temperature of the milk, when set, varied from 85 to 95 degrees, and I believe the rule laid down in the Farmer's School Book, putting at about the same temperature as when taken from the cow, viz. 90 to 95, to be a good one. Enough should then be heated or warmed to liquify the cream, (which is poured into the warm milk,) and raise the temperature of the whole, when in the cheese-tub, together with the morning's milk, to 90 or 95 degrees. In cold weather it all wants warming; when in very hot weather it wants very little or no warming; in the latter case, the cream may be liquified by putting it into the strainer, and pouring the morning's milk on it.

The rennet is then well mixed with the milk; but the quantity, as before mentioned, depends upon the strength of it. The time allowed for coagulation, I find to be about one hour, (as soon as it is coagulated, it will admit of a slight pressure on its surface without breaking,) during which time more or less cream will naturally rise to the surface. This, to prevent its escape with the whey, should be carefully skimmed into one side of the tub, and some of the coagulated milk or curd put on to it with a skimmer, the whole is then very carefully broken up with a skimmer or a cutter, made for the purpose. If the breaking up be not very carefully done, or if it be carelessly mixed, the butyraceous substance will become reunited with and escape with the whey. A coarse cloth or strainer is then spread over it, through which the whey will rise, and as much of it dipped off as can be gotten handily; the cloth is then removed and the curd broken up again as fine as can be with a skimmer, when the whey is dipped off again as before. Some of the first whey should be heated as soon as it is dipped off, and by the time the whey is dipped off the second time, it should be ready to scald the curd. The quantity heated is also regulated by the temperature of the external air; in hot weather two pails full of whey of 130 degrees, will scald the curd from forty pails of milk; but in cold weather it will take more. As soon as the whey is dipped off the second time, the curd is broken up the third time, and immediately scalded with the hot whey; as soon as the hot whey is poured on, the cheese makers thoroughly mix it and break the curd with their hands as fine as they can get it; it is then cooled by pouring on cold whey; it is then removed into a cheese-basket or sink, over which a large cloth is spread, in which the whey is worked out by squeazing and working the curd, as clean as possible; the curd is then again put into the cheese-tub and salted. The common rule is a tea-cup full of salt to every fifteen pounds of cheese, but as tea-cups, like "pieces of chalk," vary in size, I consider this an unsafe rule. The proper way is to regulate by taste. The salt should be thoroughly mixed and graduated with the curd, for if this is not done, the parts that are not settled puff up, and perhaps give it an unpleasant flavor. It is then ready for the press.

It is of great importance that the cheese should be well pressed, for no cheese will keep well that is not well pressed. I have not made any actual experiments of the different results of coagulating the milk at different temperatures, nor is this the proper season; I intend, however, to know the difference in the coming season.

Yours, &c. AARON PETRIE.
Little-Falls, April 13*th*, 1837.

Wawarsing, Ulster co. March 23*th*, 1837.

Dear Sir,—It was not till last year that I knew of the Cultivator being published as a periodical. I took the first opportunity of subscribing for the then current volume, (the third) and found it to contain so much useful and interesting information on the important subjects of which it treats, that I would have procured the two preceding volumes at quadruple the price of them; but the first being out of print, I could obtain only the second, which I have perused with *increased* interest and satisfaction. And here permit me to observe, that I think the reprinting of the first volume a highly beneficial and judicious project. I have lately sent for it and the fourth, in company with fourteen or fifteen new subscriptions, (for the fourth,) to be sent to this office.

Considering the queries and communications of correspondents, and especially the answers and remarks elicited thereby, a useful part of the paper, I would, for the sake of information, submit the following:

Is plaster liable to lose its value by being kept over year, or any length of time, in its ground state? And should it be ground *coarse* or *fine?* Reason would *seem* to dictate the latter; but some talk otherwise. Having been much disappointed in the benefits I expected to derive from the use of plaster, I wish to be better informed as to its *nature*, and the best mode and time of applying it; which, I believe, are not *well* understood by the generality of farmers. My soil, I believe, does not contain a large proportion of alumine, or calcareous earth. It consists of an elevated. dry and warm sandy loam, resting on a yellowish sandy subsoil. The stones are generally rounded, of a grayish colour, and composed of coarse hard grit, and some of them of gravel and small pebbles, of different colours. The imprints of muscle shells have been seen in darker stones.* And although this is the kind of soil which, I believe, is said to be most benefitted by plaster, yet having used it freely in various ways for the last four years, (with the exception of the second) there was but very little, and in general, no difference where it was used and where not. In the second year it was a *manifest* benefit to grass, making nearly half odds; but not so much to corn. The plaster I then used was more of a gray colour, and I *think* finer than any other used. The farm, I believe, had been plastered for eight or nine years with tolerable success before I came in possession of it; but where the main difficulty in the use of plaster lies I know not, but would be willing to learn, for being of limited means, I know not how to waste so much time and money. I shall make some farther experiments. I would also inquire if the cultivator or horse hoe, and Robins' corn planter, will work well in stony ground? And also, what is the relative value of chip manure, and the best mode of applying it?

---

* I am thus particular, because, to me, there is no part of the notices of correspondents more interesting than their descriptions of the soil, subsoil, &c. in which they either *succeed* or *fail* in raising such and such crops, or in other agricultural experiments. And I hope that they will generally give such descriptions; and also, that the geological survey of the state will be prosecuted with minuteness and despatch.

Having seen in the Cultivator a short notice quoted from another paper, stating that buckwheat straw "is better for milch cows than the best timothy hay," I will state some of my experience on that subject and the crop. The year before last, one corner of my corn field being much injured by the grub or cut worm, I sowed (on the 3d of July) one acre and a half with one bushel and a half of buckwheat. About one acre was ploughed entirely up, having sown a part of it before ploughing. The other half acre (on which was considerable corn) was but partially ploughed, and the remainder of the seed covered with the hoe in hoeing the corn. The season was favorable, and when the *grain* was ripe, the *straw* (where there was no corn) was so thick and luxuriant, that it retained nearly its primitive *greenness*. After standing four or five days in the bunch, (the weather being fine except a slight shower,) it was threshed and the straw secured in the barn. The yield was 73 bushels of buckwheat, or nearly fifty bushels per acre, besides the corn. I presume the acre which had no corn, yielded from fifty-five to sixty bushels. I could see no difference between that which was ploughed in, and that which was only harrowed after the plough. No manure was applied. The straw was pitched once over to prevent its heating, and I found that not only my cattle, but horses, (to which it was mostly fed) would eat *that* straw quite as freely as the "best timothy hay," or any other hay. But it appears that where the straw assumes the dull red colour, and where it is thick and large, (but owing to drought) it does not retain its leaves and greenness, but turns a whitish dead colour, (as was the case with much of mine last year,) it is of but little use as fodder, and more especially so if it is exposed much to the weather after the seed is ripe. There are other matters of which I would write, were I not aware that your time and columns might be better occupied. And as to publishing this, of course I leave it to your better judgment.

Yours truly, C. L. DUDLEY.

REPLY TO MR. DUDLEY'S QUERIES.

Gypsum does not, in our opinion, lose its virtues by being kept over in its ground state. According to the general received opinion, it enters into the structure and forms an essential constituent of some plants, and must undergo decomposition before it can be received into their mouths. Hence the finer it is ground the better for the crop. As it requires from three to five hundred parts of water to one of gypsum to dissolve it, our practice has been to sow it in April, or earlier, upon grass grounds, and before the last ploughing, for corn and potatoes. Plaster fails to benefit wet grounds, and often produces no sensible effect when sown late upon grass, or when the sowing is followed by a dry spell of weather, because there is not moisture enough to decompose it. Plaster is not found, on analysis, in the narrow leaved plants, as timothy, wheat, rye, &c. and it is a matter of doubt whether it is directly beneficial to them. It is also said, that many soils naturally contain enough of this material for the wants of crops; that it combines only in certain proportions with other elementary principles of plants; and it has been alleged by two of our most eminent agriculturists, John Taylor and Judge Peters, that where it is applied annually, a bushel to the acre is as good as a ton. See Chancellor Livingston's experiments in another column.

Neither the cultivator nor Robins' corn planter are adapted to very stony grounds, though the former may be used where the stones are small and loose. Chips, like all other vegetable matters, will make manure—when they have rotted—but not before. They rot best in piles—and the process may be accelerated by mixing with them unfermented dung, or lime, in an open exposure. When decomposed, they may be applied as a top dressing to grass, potatoes or other crops. They may be applied, in a half rotted state, to asparagus beds, and around fruit trees, to good advantage.—*Conductor.*

Wheatland, Monroe, April 17*th*, 1837.

J. BUEL, Esq.—DEAR SIR,—It is with pleasure that I, through the medium of the Cultivator, acknowledge the obligation which the farmers of Western New-York are under to Thomas Weddle, of East Bloomfield, Ontario, for the laudable zeal he has exhibited, in introducing so much valuable stock into the country. In the autumn of 1835 he emigrated from England, and brought with him a number of cattle, horses, sheep, and swine, viz. seventeen horses, sixteen head of cattle, eighteen sheep, number of swine not recollected. The horses are of the Cleveland bays, and racing breeds; the former I consider a valuable acquisition, being a beautiful bright bay, and uniting size, strength and action, equal to any thing I ever saw. The racers, of themselves, are not of much value to farmers; but should they cross well with the heavy horse, which Mr. Weddle is trying, they may produce a very valuable breed. The cattle are of the pure improved short horned Durhams; they are large yet well proportioned, fine in the bone, soft in the skin, and exhibiting in a great degree all the evidences of good provers, and are very peaceable and docile. The sheep are of the improved Leicester breed, of a large size, early, and easy feeders, yield a good fleece, weighing from six to eight pounds; the wool is long, but soft and silky. They cross well with the Merinos, the half bloods, (with a Merino cross;) are large, healthy sheep, yielding a heavy fleece, of a fair staple, sufficiently fine for ordinary purposes. Mr. W. in selecting the above stock in England, was at the trouble and expense of selecting them from different families, which will enable him to breed the pure full bloods, without breeding in and in, which has so often been very injurious to the offspring of our imported stock. Mr. Weddle can give the pedigree of any of his animals when desired; but to all good judges who see them, they need no recommendation, and any one who wishes to purchase or takes pleasure in seeing fine animals, will be well compensated for paying him a visit.

Yours sincerely, WM. GARBUTT.

M. ON STEEPING SEED CORN.

To the Editor of the Cultivator,—I am induced, by the perusal of Mr. Bowers' communication on corn culture, in your last paper, to submit a few remarks upon one subject alluded to in that communication. I agree with him in his commendation of the early maturity and prolific qualities of the Dutton or Buel corn. I also agree with him upon the advantages derived from the use of the roller and the cultivator, and from smooth hoeing, or hoeing without hills. But I cannot agree with him in his recommendation, (for his observations upon the subject amount to a recommendation,) of the steeping of the seed and rolling it in *hot* tar. I will state the reasons for my disagreement with him, and present views on this subject.

In the spring of 1832 I steeped my seed corn in water, in which a portion of lime had been dissolved. I did not note the length of time it remained in steep, but it was steeped pretty thoroughly. It was planted upon a flat piece of ground, with a retentive subsoil; the season was a wet one, and very little of the corn came up, so little, that the whole field had to be replanted. In the seasons of 1833 and 4, as well as in 1836, I simply wet the seed and rolled it in plaster; there was no failure in either season. In 1835 I procured some of the Dutton corn for seed, and agreeably to the directions in the May number of the Cultivator, for that year, (page 36,) I steeped a portion of it, for twelve hours, in water poured on at 196 degrees, 16 degrees below the boiling point, which is *about* the heat directed in the Cultivator. I then applied a coating of tar and plaster, in the manner directed in the article referred to. The corn, so prepared, was planted on the 25th of May. On *that* day, another portion of the corn was put in steep, and similarly treated, except that the water used was not as hot, (the heat was not noted,) less tar was used, and a small quantity of salt-petre was dissolved in the steep. This seed was planted on the 26th of May; there not being a sufficient quantity of the Dutton corn to plant the whole field, it was finished with some eight rowed corn, the production of the farm, which had been selected from the hill the previous fall for seed, which, for want of time, was simply wet in *hot* water and *tarred* slightly. The weather, at the time of planting, and for some time afterwards, was extremely dry, and the soil was in a dry and powdery state.

Under date the 3d of June, I find the following note in my diary: "The seed corn, which was planted on the 25th ultimo, has failed to vegetate, while that which was planted on the succeeding day, as well as the eight rowed corn used to complete the planting of the field, is mostly above ground. It well be recollected that the whole of the Dutton corn was purchased at the same time, shelled at the same time, and indiscriminately mixed; it was planted in the same field, upon soil of the same quality and preparation, and under the same circumstances, except the slight difference in the preparatory process. This difference, under ordinary circumstances, might not have produced the difference in the result; but under the peculiar state of the weather at, and subsequent to, the time of planting, I think it a sufficient and the true cause. My neighbor C—— planted his field, immediately adjoining my corn field, on the 28th of May, three days after mine was planted. He planted *dry*, but his corn made its appearance above ground sooner than mine, and the young shoots were more vigorous and healthy in their appearance. I have no doubt that, owing to the excessively dry season, the *whole* of my seed was injured, and its germination retarded by the steeping and tarring. I attribute the growing of the portion of the seed which survived, to the circumstance, that the preparatory treatment was less energetic. *It grew in spite of it.* [Mr. A—— informs me, that the whole of his corn crop has failed, and that he *steeped his seed.*] I am decidedly of the opinion, that the steeping of seed of any kind, is detrimental when the weather, immediately succeeding the planting, is unfavorable, either from cold, dryness, or excess of moisture."

Subsequent reading and reflection have confirmed me in this opinion. I have no doubt that the steeping of seeds, in *favorable* seasons, has the effect of accelerating the germinative process, because all seeds must imbibe air and moisture before germination commences. If they are not charged with moisture therefore, when sown, they must imbibe it by a slower process from the soil. Could we always calculate upon propitious seed-times, it would be, undoubtedly, advisable always to steep. But we cannot control the elements. If the season should be very wet, as in 1832, the soaked seed will be apt to perish from repletion of moisture; and, should the season be dry, as in 1835, the moisture is absorbed by the thirsty soil from the seed, whose vessels, distended by the water it had previously imbibed, contract and become indurated, and the germ, whose vital action had been prematurely excited, shrivels and dies. While on the other hand, seed committed to the soil, in its natural dry state, retains its vitality for a considerable length of time; and, under unfavorable circumstances, its vital principle remains dormant and uninjured until a favorable state of the soil and atmosphere calls it into action.

For the above reasons I deem it the safer practice, as a general rule, to sow or plant seeds, Indian corn particularly, in a dry state. I particularize Indian corn, because it is the tenderest of our grains; and a check in its infancy is often destructive. We often hear of the successful results of steeping seeds, and of the use of various fertilizing mixtures for that purpose. I am aware also, that the practice is a very ancient one; Virgil tells us that,

> "Some steep their seed, and some in cauldrons boil,
> With vigorous nitro, and with lees of oil,
> O'er gentle fires; th' exuberant juice to drain
> And swell the flattering husks with fruitful grain."

Yet, notwithstanding the antiquity of the practice and the respectable testimony in its favor, my own experience and observation lead me to the opinion, that it is more often injurious than beneficial. We should probably have heard of some failures, were it not for the circumstance, that while many note and communicate the *successful* results of their farming operations, but few take the humiliating trouble to publish their *mistakes* to the world; although the latter practice would be equally instructive with the former.

Water acts upon seeds, in the first place, mechanically. The germ derives the whole of its sustenance from the food stored up for its use in the seed, until it acquires the necessary organs for absorbing its nutriment from the air and soil. Hence *fertilizing* steeps are useless, under any circumstances. If steeping be deemed advisable, pure water must be equally efficacious with the richest fertilizing solutions. Some substances, like chlorine, accelerate germination by their stimulating effects; but this is always at the expense of the vital principle. *They do not furnish aliment to the embryo plant.* I am borne out in this position by several able writers on the science of agriculture, and with your permission, at the risk of extending this communication to an undue length, I will make a few quotations touching upon this point as well as upon the propriety of steeping in general.

Professor Rennie, in his "Alphabet of Scientific Gardening," says, "It will be an obvious inference respecting water, that, like the oxygen and the heat, if it be in too great quantity, it will render the contents of the seed too thin and weak, and will also increase their quantity so much, that the vessels of the embryo plant will be gorged, and disease or death will follow. When the quantity again is not enough to produce this effect, still it may be in such large proportions as to push the growth too rapidly for the health of the plants.****

"Hence the practical error, at least in most instances, of steeping seeds.** All steeps which contain any thing but water and oxygen are unnatural, and must be injurious; such, for instance, as urine, or drainings of dunghills loaded with humic acid, which embryo plants cannot feed upon, no more than a new-born infant could drink strong ale or wine with impunity. Some strong infants might survive taking such drinks, as some strong seeds may survive the steeps; but these survivals would not justify the practice."

"During the first stages of vegetation," says Chaptal, "the feeble plant rejects those other aliments which, as it advances in strength, become the principal agents in its nutrition."

Sir Humphry Davy says, "I steeped radish seeds for twelve hours in a solution of chlorine, and similar seeds in very diluted nitric acid, in very diluted sulphuric acid, in weak solution of oxysulphate of iron, and some in common water. The seeds in solutions of chlorine and oxysulphate of iron, threw out the germ in two days; those in nitric acid in three days, in sulphuric acid in five, and those in water in seven days. But in the cases of premature germination, though the plume was very vigorous for a short time, yet it became at the end of a fortnight weak and sickly; and at that period less vigorous in its growth than the sprouts which had been naturally developed, so that there can be scarcely any useful application of these experiments. Too rapid growth and premature decay seem invariably connected in organized structures; and it is only by following the slow operations of natural causes, that we are capable of making improvements."

Judge Peters, in his "Notices for a Young Farmer," although he slightly recommends the steeping of Indian corn in solutions of hellebore, copperas or salt-petre, adds as a caution, "But do not soak or steep too much. In dry weather, the germination is accelerated, by steeping, injuriously; so that the plume and radicals perish; and in long wet seasons they rot."

I do not attribute the failure of the portion of corn planted on the 25th of May to any *direct* and immediate injury sustained from the hot water or tar. I will mention as a singular circumstance, and to show that the corn was not *scalded* to death as some may suppose, that so late as the 17th of June, while engaged in hoeing the corn, planted in the place of the portion which failed, quite a number of grains, planted on the 25th of May, were disinterred, which were then just beginning to sprout. The coating of tar and plaster was found incasing each grain, in an indurated state; and it is not improbable that this coating may have prevented the access, to the seed, of the air, so essential to germination, and thus have been one of the causes of the failure.

But I must conclude. I have extended this communication to a length which, I fear, will preclude it from the columns of your truly useful journal. I send it to you, however, as it is. If my views are erroneous, I wish them corrected; if they are just, it will subserve, though to a trifling extent, the cause in which you are so ably engaged, to give them publicity.

Greenbush, Rensselaer co. March 23d, 1837. M.

REMARKS.

Steeps, we admit, do not furnish nutriment to the embryo; yet we think they are often beneficial in two other ways—viz: in quickening the germination, and, by impregnating the soil with saline and fertilizing matters, giving vigor to the early growth of plants. Steeps answer a further purpose, if they contain salt or lime—they destroy the seeds or infection of smut, and the eggs of insects, which may exist in the seed. The Chinese, we are told, steep all their seeds. In plants as well as in animals, the degree of perfection to which the individual is likely to attain at maturity, is judged of, in no small degree, by the health and vigor of its early development. Old seeds generally make weak shoots, and are tardy in coming; yet if they are steeped in a liquid highly charged with oxygen, they germinate quick, and send up strong shoots. By means of such steeps, Humbolt and other German naturalists have grown seeds that were a century old, and which had apparently lost the vital principal of life.

The failure of the seed to grow in the first experiment, was probably owing to the great temperature of the liquid. We believed that scalding water would not prove prejudicial to corn more than to the seed of the locust, until, by recent experiment, we have found that the vitality of the seed is completely destroyed at the boiling temperature. Hence we should advise that the steep be not made hotter than can be borne by the hand.—*Conductor.*

THE PHILOSOPHY OF CROSSES.

Few persons who have reflected on the matter at all, will be disposed to deny, that between the animal organization of man and of brutes, there exists a striking similarity. In the functions of reproduction, nutrition, digestion; in the materials of bodily structure; in the gradual reaching of the highest point of animal vigor and perfection, and in a gradual decay; in the purely animal propensities and their consequences; the accomplishment of the same ends by the same means, and an identity of results; man as an animal, and the brute, scarcely differ. This fact does not in the least affect his moral and intellectual distinction and superiority; it is not these things, strictly speaking, that constitute the *Man.* This community of constitutional feelings and functions being clear; the fact may we think be advantageously used in many questions of animal sympathies, habits, and organization; by illustrating those things which are but imperfectly understood in the animal, by the corresponding habits and sympathies which belong to man as an animal, and which have been made the subjects of closer investigation, and rigid analysis.

The effect which the intermixture of different races of horses, cattle or sheep, or what in other words is called the crossing of breeds, has upon the progeny, in raising or lowering the character of the animal, uniting the good qualities of both, or sinking both to a common standard, is a question of the greatest interest to the farmer; and which it is presumed may be made intelligible, and the results better understood by a consideration which such processes have upon man. Dr. Pritchard has laid down two rules as the result of extensive observation on this matter,—"First, that the organization of the offspring is always modelled according to the type of the *original structure of the parent;* and, secondly, that changes produced by adventitious or external causes in the appearance or constitution of the individual are temporary; acquired characters in general being transient, terminating with the individual, and having no effect on the progeny."

Illustrations of the first proposition may be found in the mixed races of white and Indian in Canada, in North America; the Spanish and Indian in South America; the English and Hindoo in India; as well as other less distinctly marked instances in other parts of the world. In these cases it is invariably found, that the progeny is far superior in hardihood and capability of enduring the peculiarities of climate to the imported parent, but inferior in mental capacity and endowments; while its moral and intellectual capacities are proportionably elevated above the native races of those countries. As proof, we refer to the half-breeds of the Canadas and Cherokees, many of whom appear to combine the native cunning of the Indian with the cool deliberation of the white:—to the mulattoes of St. Domingo, who now hold the rule of that fertile island in defiance of both whites and negroes;—to the mixed race in Colombia, many of whom are prominent characters in the republic, Gen. Paez, now president of Venezuela, for instance;—and to India, where the half-breeds are so decidedly superior to Europeans in physical, and to the natives in mental qualities, that they may already be considered as marked out for the future sovereigns of the east.

In applying these principles to the crossing of breeds of cattle, it will be sufficient to mention the improvements effected by Sinclair and others in Scotland, and by Bakewell and others in England. In Scotland, the native breeds of cattle were a small black buffalo looking race. worth little for labor, and still less for the dairy. Some men, called book farmers, determined to make an experiment of improving the stock by crossing the breed, and combining, if possible, the size and valuable qualities of the English cattle, with the extreme hardihood of the native black cattle; as the former, when pure blooded, withstood with difficulty the severe winters of the Highlands. The result fully justified their anticipations, some most valuable breeds of cattle, among which is the celebrated Ayrshire, were gradually produced, and have become fully acclimated; while the black cattle and the tartan have disappeared, except from some of the most remote and unfrequented vallies of that wild country. What has been done in England in improving cattle, we have had occular demonstration before us, in the beautiful full bred animals that within a year have been imported from abroad; particularly those introduced by the patriotic agriculturists of Ohio.

The horse too, may be mentioned as illustrating the principle laid down in the above extract. The swift and beautiful Arabian would be unable to withstand our severe climate and exhausting labor; yet by mixing his pure blood with our hardier and heavier races of animals, breeds are obtained, adapted to the climate; yet combining the fleetness of one, with the bone and muscle of the other. The original qualities of the parents are generally decidedly shown in the offspring, or if partially obscured in one individual, succeeding ones show they are not lost; the constitutional type remains permanent and unimpaired.

Perhaps the pernicious effect of breeding in and in, as it is called, that is, propagating races and families without crossing, or paying proper regard to the qualities of the parents; and the obvious benefits of selecting the best breeds and improving them by crosses, cannot be better shown, than by an example or two selected from well known facts respecting the human family. In Spain and Portugal, and in a less degree, some other European countries, the degeneracy and even idiocy of some of the noble and royal families, caused by constantly intermarrying with each other nephews, neices and cousins, is a subject of common remark, and obvious to the most carcless observer. Viewed phrenologically, their heads show that the mental and moral powers are diminished to the lowest ebb, while their animal organization continually gains in ascendency. The late king of Spain, Ferdinand the 7th, was a striking example of this; as his projecting lips and chin, and retreating and sunken forehead, gave his head an aspect more resembling a baboon than a man; and as was to be expected from such a conformation, in him the animal powerfully predominated.

On the contrary, all travellers agree, that the finest specimens of men any where to be seen, are to be found among the higher ranks, the nobility and princes of Turkey and Persia. This is accounted for by the fact, that from time immemorial the custom has existed in those countries of purchasing the most beautiful and perfect Georgian and Circassian girls, and forming connexion with them as wives. Perhaps there is no country in which can be found individuals in whom the moral and intellectual development is higher than among these beautiful captives; and thus, by constantly crossing the blood of the nobles of those countries, who alone can be the purchasers, the constant tendency of their lives to sensuality and mental effeminancy is counteracted. The London Quarterly Review, one of the best authorities on the subject, says, that some of the most beautiful women in England, if not in the world, are to be found among the milliner girls of London; the illegitimate and unowned offspring of the nobility, from connexion with the most beautiful and intellectual of the middling and lower classes, females who have rarely been able to resist the combined influence of rank and wealth. These facts, which are not to be disputed, seem to place the proposition that the progeny will resemble the original structure of the parents beyond a reasonable doubt.

There may be exceptions to the rules indicated by the above ascertained facts; as a good cow may have a bad calf, or a bad cow a good one; and now and then a respectable, intellectual man, or a beautiful woman, may spring from a stock to which in general such qualities are utter strangers. But these changes are temporary, owing to adventitious circumstances, and do not spring from any constitutional alteration; consequently they usually disappear with the individual. So too in the best races of men or animals, inferior specimens may occasionally be found, yet their progeny will usually have redeeming qualities, which show the excellence of the stock from which they sprung. Their faults are purely accidental or individual; they do not belong to the constitution of the race, and therefore end with the one on whom the faults are found.

Experience has shown that there is little danger in breeding from a horse which is not perfectly unexceptionable, if his pedigree shows in both lines an unbroken succession of good blood; his faults do not belong to the breed, and are therefore rarely if ever propagated. But if in his pedigree you find a cross of decidedly inferior blood, beware lest you do not find the defects of the parent continued in the progeny; a sure proof that the difficulty is constitutional, and the defect one which can no more be got rid of than the hair or hoofs. Bad blood will sooner or later show itself; it is like the disposition to lunacy in certain families, sometimes passing two or three generations and then becoming again fully developed. We have witnessed another singular illustration of the tenacity with which constitutional defects cling to a race, in a family in which in both the male and female lines there is tendency to produce individuals with six fingers and six toes; and in which scarcely a family of children can be found, one or more of which are not distinguished by this extra member.

The practical inferences we would wish those who are engaged in the laudable effort of improving horses, cattle, or sheep, by crossing breeds, or by importing, to draw from the above remarks, are first, to get the best blood belonging to the breed; and secondly, to secure animals that combine the greatest number of valuable qualities for their experiments. In this way only can they expect the full success which should crown their labors. If our native breeds are to be made in part the basis of operations, for instance, a native cow and an imported bull, it is clearly increasing the chance of a valuable progeny to select a cow combining in a good degree, aptitude to fatten, strong constitution and capability of enduring our severe winters, a kind disposition, and withal a good milker. Such cows can be found among us, and if they were more common, or a certainty they would produce their like, the necessity of imported stock would be much less urgent than it now is. Now, unless there is a trace of foreign blood in the animals there is no certainty, scarcely a probability, that the progeny will resemble the parent; the excellencies are merely accidental, they do not belong to the original stock, they are not in the type, and therefore will be evanescent.

A short sketch of the various crosses which have produced the present improved breeds of cattle in England, may not be out of place here. In Great Britain, the *Short Horns*, one of the valuable kinds, and which is now principally sought after in this country, comprise the descendants of the Dutch breed the parents of the original Durhams;—the Teeswaters a cross between the Durham and the Alderneys;—the Holderness improved by a cross with the Teeswaters; and the Yorkshires, a cross between the improved Holderness, and the improved Short Horns. The "*improved short horns*," the best breed of cattle existing, considered in every respect, is a cross of the best Teeswater or Durham, with the Galloway from the north of England, and no animal can be considered as of undisputed blood whose pedigree cannot be traced up to the celebrated Teeswater bull Hubback, owned by Mr. Colling, the original improver of the breed. Next to the Improved Short Horns, the Devonshire breed, are ranked in value. They are supposed to belong to the original stock of cattle in Great Britain, uncontaminated by foreign intermixture. Mr. Bakewell, by breeding from the best animals that could be selected, brought the Devons to such a state of perfection, that all attempts at crossing by other breeds have only deteriorated instead of improving the breed; and though for some purposes partially superseded by the Short Horned Durhams, they are still deservedly great favorites. In beauty and uniformity of colour, a dark rich mahogany, the Devon has the advantage over the Short Horn, while the latter clearly asserts the supremacy in form. The celebrated Ayrshire breed sprung from a cross of the native Holderness and Highland with the Durham.

It is, perhaps, unnecessary to illustrate this subject farther. What has been done abroad can be done here; and our agriculturists should remember that they stand on the high vantage ground gained by the experiments and the labors of centuries. The ground already travelled by the pioneers in the improvement of breeds is not again to be gone over; the point of success reached by others is our starting point; and much shall we be to blame, if with all the additional light of science, and the experience of years, in our possession, we suffer improvement to retrograde, to go backward instead of forward.

Onondaga County, 1837. W. GAYLORD.

BEET SUGAR.

ROYAL AND CENTRAL SOCIETY OF AGRICULTURE.

Report in the name of a special commission composed of M. M. Le Baron de Sylvester, the Duc Decazes, Count de Chabrel, Darblay, Crespel Delise, and Payen, reporter, with practical instructions, and prize questions on the extraction of sugar from beets, adapted to rural establishments, and the means of improving and forwarding this branch of industry, made in 1836.—[*Concluded.*]

[Translated from the French, by Dr Spoor.]

Crystallization.—To expedite the formation of crystals, it is best to place the moulds in a close room, and to keep up a gentle heat in it, at least for the first crystallizations; for after pouring the boiled sirup daily into the coolers and moulds, the temperature will be maintained at the proper degree without any other care. Any room where fire is commonly kept will serve for this crystallization.

Draining or leaching.—When the whole mass becomes well crystallized, the openings in the moulds should be uncorked for the molasses to run out; no precautions are necessary except to keep up the temperature nearly to that of a green-house, so as to prevent the draining going on too slowly.

When the raw sugar becomes sufficiently drained, so that the sirup is no longer to be seen in it, which takes place in from eight to twelve days, with the exception sometimes of a quarter or a fifth part of the height of the mould towards the point, the sugar may be delivered to the refiners, or spread out in beds of from two to three inches in thickness, on shelves in a warm and dry place, in order the better to dry it before it is sent away. If the draining is prolonged in a cellar that is somewhat damp, the upper part of the loaf may be spontaneously refined and whitened by the moisture which gradually settles upon it each day, and carries off with it the salts and soluble foreign matter, that affected the taste of the raw sugar. The whole thickness of the part thus refined may be removed at once, or in different portions, then left to dry, and directly employed for domestic purposes.

Reboiling the molasses.—All the molasses ought to be reboiled in the shallow pan, with still more precaution than the sirups, for they are more liable to burn. If they are of very good quality, they are put into moulds to clarify; but if they are not rich in sugar, the products of all the boilings are mixed together, in any kind of vessels, such as stone jars, cast iron pots, or even well hooped casks. A second slow crystallization takes place in a longer or shorter time; and after having decanted the molasses, the crystals are taken out with a ladle, in order to drain them in a mould or bucket, the bottom of which is provided with a clean cloth. These sugars well drained, may be treated like the first, although they are not so fine.

The second molasses may once more be reboiled, and a third crystallization be obtained from them, by setting them aside in large vessels for a whole year. It is the liquid that floats over the crystals there deposited, which may be regarded as the last molasses, and which is to be employed as food for horses, cows and oxen, by diluting it with eight parts of water, and mixing it with cut straw or hay, about twelve hours before it is fed to the animals.

Refining with sirup.—This mode of refining raw sugar is easy to follow: It is necessary that the sugar should be well crystallized; and to that end the boiled sirup should be poured into each mould, as soon as there is enough of it to fill one, and the crystallization should be left to go on to its completion without disturbance. Then a sirup or *clairee* is to be prepared by dissolving with heat, some raw sugar well drained, or even some molasses sugar, in a third of its weight of water; when the liquid is near the boiling point, about three kilogrammes of fine animal charcoal for 100 kilogrammes of sugar is thrown in and well stirred. Then four eggs, the whites, yolks and shells, beat up with four quarts of water, (or one quart of blood mixed with four quarts of water,) are added, and the whole stirred briskly for some seconds. It is then left without stirring, to heat to the boiling point, which is kept up for some minutes. The liquid is then drawn off clear, and poured upon a filter containing from eight to ten kilogrammes of coarse animal charcoal. The first liquid that filters is only the water with which the charcoal was moistened; this is thrown away, as the next portion runs off sweet it is kept by itself; but we wait till the liquid that comes through is quite sirupy or thick, in order to preserve it as a clarifying sirup; this then forms the third portion that runs out. The second which is saccharine, but not sirupy, answers for the first washing of the filter, which washing is finished with warm water, and the product of which, strained, serves to dissolve a new portion of sugar for another preparation of clarifying sirup, (clairee.)

The refining sirup obtained as we have said, when it becomes cool, serves for refining the sugar previously well crystallized and drained. The surface of the loaf is made smooth by scraping off the crystals adhering to it, and these are covered with a piece of woollen cloth, previously soaked in warm water and well wrung. Only a pint of this clarified sirup is, at one time, poured on a large loaf of from fifty-five to sixty-five pounds; this is repeated four times a day for two days, equalising the surface at the commencement of each application of the sirup. It is then left to drain perfectly, and the refining is completed.

The sugar, then taken out, excepting the very point of the loaf, is spread out, dried, and packed, like raw sugar. The first sirups that are filtered through the animal charcoal, and sufficiently boiled down, may also be used in the way of clarifying sirup, if the raw sugar is not intended for immediate consumption.

All such portions as are imperfectly drained, are put together and united in a single mould, in which the draining is completed, and upon which may also be poured three or four pints of sirup.

The sirups that have drained from the refining may serve for passing over other sugars to be clarified, which will economise half the clarifying sirup to be employed for these.

The first sirup of this second refining, being more impure, must be boiled to obtain the raw sugar from it.

The waters from the last washing of the filters, when there is no more sugar to be dissolved, for the purpose of making refining sirup, are to be boiled down by themselves, or with the clarified juice of beets.

Reviving the animal charcoal.—This operation requires several washings with water, and is easily performed by throwing the animal charcoal taken from the filter into an unheaded cask, half full of water, and as fast as the charcoal is thrown in, the water is briskly stirred by means of a half worn out birch broom. The coarsest part of the charcoal is then allowed to settle in the bottom, and the turbid water decanted; a second quantity of clear water is put on, which is stirred and decanted like the first. Then the coarse charcoal, now washed, is taken out and left in a heap to drain. It is well to dry it by spreading it in the open air, or in an oven after baking bread; when it is dry, it is heated in the burner, or kittle described page 16, until the whole of it becomes nearly of a red brown colour, or until it does not give out any more vapor having a strong smell. It is then put in a heap, and sifted through a fine sieve to separate all the fine dust. This is not lost, but is collected together to be put into the first evaporating boiler. Before using the coarse animal charcoal thus prepared, it is best to give it a second washing, similar to the first. In thus reviving the animal charcoal, which is used every day, it is scarcely necessary to add to each operation more than a twentieth part of new charcoal.

In closing this instruction, we must again recommend, as a condition necessary to success, to despatch every operation, from the rasping to the last evaporation, and even the moulding; for the juices or sirups that are not concentrated, if allowed to stand, immediately undergo changes, and will never crystallize so abundantly, nor even after a short time yield any thing but molasses, instead of sugar in crystals.

PRIZE QUESTIONS.

1st. A premium of 3,000 francs shall be decreed to the competitor who shall have made known the most simple and economical process, within the reach of small country establishments; and shall have given a good description of the same. The processes must have been in use two or three months, and yielded a daily product of at least twenty-eight pounds of sugar. The simplicity of the processes must be such, that farmers themselves may be able to put them in execution, and obtain the proposed results. The sugar obtained must have passed through the first stage of purification, either by long continued draining, or by the refining sirup, or in some other way, so that it may be fit for immediate family use, or to be delivered to the refiners, at option. The competitor must give the reasons of his preferring the said processes, by their comparison with other processes already in use.

2dly. A premium of 2,000 francs is offered for the construction of apparatus, the price of which shall be within the reach of farmers, or an association of farmers, who propose to treat at least 50 hectolitres of juice daily. Economy of construction, facility in using; economy in fuel, or moving power, compared with the principal apparatus already in use, are the most essential conditions; but on the whole, all other things being equal, *the greatest reduction of the expense of manufacturing a certain amount of sugar*, will be the grounds of the decision of the society.

3dly. A premium of 1,000 francs will be awarded for the most remarkable improvement, hitherto not known, in any of the operations above detailed, the fact of the improvement to be verified by a committee of the society, and the results ascertained by actual experiment.

4thly. Premiums of 100 francs for each of the competitors who shall have erected one of the twelve first small manufactories, making in an economical way, from beets of his own production, over 300 kilogrammes of sugar, in one year, of sufficient purity for family use.

Besides the above premiums, medals will be awarded, at the same session, to persons who shall have co-operated effectually in establishing the greatest number of small manufactories of beet sugar in the country, either by communicating to farmers processes, the knowledge of which they acquired by practice, or by encouraging them by their example and advice. And also to those who, by a similar co-operation shall have succeeded in organising the greatest number of farmers into associations for the establishment of central manufactories; and finally, to those manufacturers who shall have made the greatest number of exchanges (with neighboring farmers,) of sugar for beets. The happy results obtained under these instructions must be proved by the affirmation of agriculturists, and by the regular certificates of the municipal authority.

The society will take pleasure in giving all the information required of it by letters, post paid, or received through the inspectors, under cover, of the minister of commerce.

EXTRACTS.

[*From Low's Elements of Practical Agriculture.*]

CHEESE MAKING.

Cheese consists of the caseous matter of milk united to a certain portion of the oily or creamy part. This oily portion adds to the flavor and richness of the cheese, and hence, when good cheese is wanted, the cream should not be separated. Cheese, however, can be made from milk from which the cream has been removed; and it is then termed skimmed-milk cheese. It may even be made from butter-milk, in which the cheesy part entirely remains. But then, the creamy part being more withdrawn than in the case of skimmed-milk, the cheese wants still more the properties and flavor which are valued in this species of food.

For the making of cheese, the utensils usually required are:—a large tub, in which the milk is coagulated, and the curd broken; the cheese-knife, sometimes of wood and sometimes of iron, with one or more blades, for cutting the curd and allowing the whey to separate; wooden dishes, for removing the whey; generally another wooden vessel perforated with holes, for further expressing the whey; small circular vats, in which the cheese is placed that it may be compressed; and finally, the cheese-press.

Cheese-presses are of different forms. They are generally made to act upon the curd by the continued pressure of a weight. The most simple, perhaps, is a long beam, made to act as a lever, the cheese to be compressed being placed in its vat, between the weight and the fulcrum.

But more complex forms of the cheese-press, and, in some cases, more convenient, may be adopted.

The coagulation of the milk is produced by various substances, but the most approved is rennet, which is prepared from the stomach of a young calf. This substance may be obtained as follows:—

The stomach of a new-killed calf, with its contents, consisting chiefly of coagulated milk, is to be taken. The matter of the stomach is to be preserved, separating merely any indigested substances, as straw and the like, that may be mixed with it. It will add to the quantity of rennet obtained to feed the animal largely with milk, some hours before it is killed. A few handfuls of salt are to be put into the stomach and all around it. It is then to be rolled up, and hung near a fire to dry; and its quality will improve by hanging it up a year or more before it is used. It is the gastric juice in this rennet which produces the coagulation of the milk.

When the rennet is prepared for use, it is cut into small pieces and put into a jar, with a handful or two of salt. Water, which had been previously boiled and cooled again, is then poured upon it, and allowed to remain for two or three days. It is then drawn off, and a second infusion made, but with a smaller quantity of water. This also remains a few days, and being withdrawn, the two liquors are mixed together, strained through a cloth, and put into bottles, to be used when required.

The usual manner of making cheese is the following:—The milk is put into a large tub, and this as soon after being obtained from the cows as possible. If there is a sufficient number of cows upon the farm to produce one cheese at a milking, the process is performed immediately on the milk being brought from the cows. The milk, after being strained through a sieve, is put into a vat, and while yet warm, a table-spoonful or two of the rennet is mixed with it, after which the coagulation soon takes places.

But if there be not a sufficient number of cows to make a cheese each time they are milked, then the milk, as it is brought from the cows, is put into the milk-vessels until as much is collected as will form a cheese. When the cheese is ready to be made, the cream is skimmed off, and as much of the milk is heated separately as, when added to the mass again, will raise it to about 90°. The cream which has been separated is then either mixed with this heated milk, and so liquefied and dissolved in it; or it is not added to the general mass until the heated milk has been added.

The curd being fully formed, it is cut in various directions with the cheese-knife, so as to allow the whey to exude; and the whey is then lifted out in flat dishes, the curd at the same time undergoing a gentle pressure. The curd is then cut into small pieces by the cheese-knife, and put into a sieve or vat with holes, and then repeatedly cut, pressed by the hand, and broken, until it ceases to give off any serous matter. It is last of all cut very small by the cheese-knife, and a quantity of salt, in the proportion of about half an ounce to a pound of cheese, being mixed with it, it is wrapped in a piece of cloth, and then put into a small wooden vessel with circular holes at the sides and bottom, and placed in the cheese-press.

The time during which the cheese remains in the press is dependent upon the nature of the cheese and the degree of previous manipulation which it had undergone. In some of the finer and richer cheeses, the pressure is very slight, and in some cases the cheese-press is altogether dispensed with.

But in ordinary cases, the cheese being wrapped in a cloth, and put into its vat* with a board above it to fit the vat,† remains in the press from one to two hours. It is then taken out, broken again by the hand, wrapped in fresh cloth, and replaced in the cheese-vat; and sometimes it is not broken, but merely reversed. It may then be taken out every five or six hours, and the cloth changed. After being pressed in this manner for two or three days, the operation will be complete. The cheese may then be kept in a warm place for some time till dry, and ultimately placed in the store-room for preservation.

---

* Termed cheese-hoop.

† Termed follower.

But great variations take place in the manner of performing the operation of the cheese manufacture; and certain districts are distinguished by their peculiarities of practice. In England, more manipulation is generally employed than is thought necessary under the system of management adopted in the dairy-districts of Scotland.

The richness and flavor of cheese very much depend upon the quantity of cream which the milk contains. In the districts of England most celebrated for rich cheese, the cream of one milking is skimmed off and mixed with the entire milk of the subsequent milking. In this way the milk which produces cheese has its own cream and that also of a previous milking.

It is a frequent practice to colour the milk, so as to give a red tinge to the cheese. This is now generally done by a preparation of the red pulp of the seeds of the arnotta tree. This adds nothing to the goodness of the cheese, but the mixture is harmless.

The residuum, after the separation of the curd, it has been said, is whey. This substance is chiefly employed to feed hogs, and is exceedingly well suited to that purpose.

These are the principal details which it is thought necessary to give regarding the preparation of these salutary and nutritive substances. By means of the dairy, a larger quantity of nutriment can be obtained from the consumption of an equal quantity of herbage than by any other species of feeding. The dairy forms an important branch of public industry, and contributes in a material degree to the support of the inhabitants of this and other countries of Europe.

In the practice of the farm, where the main object is rearing animals for feeding, the kinds of animals will be selected for breeding which are the best suited for that purpose; and the production of milk will be regarded as secondary and subordinate. But when the principal object is the production of milk, then animals will be selected the best adapted for yielding rich and plentiful milk.

The form of animals that are best fitted to arrive at early maturity and secrete fat, differs in some respects from that which indicates a disposition to secrete and yield milk. A dairy-cow, like a feeding animal, should have a skin soft and mellow to the touch,—should have the back straight, the loins broad, the extremities small and delicate; but she should not, as in the case of the feeding animal, have the chest broad and prominent before. She should rather have the fore-quarters light, and the hind-quarters relatively broad, capacious, and deep; and she should have a large udder. There should be no breeding *in-and-in*, as in the case of a feeding stock. The object in rearing cows for the dairy is not to produce animals that will arrive at premature age, but such as are hardy and of good constitution. By long attention to the characters that indicate a disposition to yield milk, the breed of Ayrshire has become greatly more esteemed for the dairy than other animals much superior to them in size and feeding qualities.

[*From Chaptal's Chemistry applied to Agriculture.*]

IMPROVEMENT OF THE SOIL.

A KNOWLEDGE OF ITS QUALITIES ESSENTIAL.

To improve the soil is to render it more suited to vegetation by ameliorating the nature of the earth. All then which tends to dispose a soil favorably towards plants, in connection with the action which is exercised upon them by air, water, temperature, manures, &c. may be justly termed improvement. Thus before undertaking to improve a soil, it is necessary to be acquainted with its qualities, and particularly with its defects, that we may apply to it the means of improvement it requires.

This preliminary knowledge of the defects of a soil implies a second, which is that of all the agents which can be employed in its improvement; the correction of known faults can only be performed by means of substances possessing opposite qualities.

As in the term improvement is implied all which can tend to ameliorate a soil, it necessarily has a very extensive signification; it comprehends operations purely mechanical, and the use of those earthy and nutritive mixtures, which are produced by art; it likewise comprises all the means which can be employed to direct advantageously the action of air, water, heat, &c. It is in all these relations, that it is necessary to consider the great art of improvement.

PULVERIZATION AND STIRRING NECESSARY.

The best earths produce but little, if they be not stirred by the spade, the hoe, or the plough. This operation divides and softens the earth, brings to the surface the manures of all kinds, which the rains had caused to sink below it; facilitates the spreading of the roots, mixes the dung with the earth, and renders its action more equal; it destroys weeds, and causes them to serve as manure; and it frees the soil from vermin, which would otherwise multiply in it to the destruction of the harvests.

This operation is performed upon all soils of what kind soever; it forms the very basis of agriculture; without it there can be no harvest. The tillage by the hoe is much more perfect than that by the plough, but the spade is a still more efficacious implement. The plough divides and turns the soil with less exactness than either of the others; and notwithstanding the crossed and multiplied furrows, there will be some portions of the intervals and intersections, where the soil will remain untouched; but as tillage by the plough is the least costly, and the most expeditious, it has generally received the preference.

I know a little village in Touraine, between the Cher, and the Loire, where all the lands are cultivated by the spade, and their produce is always double that of any in the neighborhood; the inhabitants have become rich, and the soil has doubled in value. In Bremont, between Loches and Chinon, they employ no other means of cultivating a very fertile soil; but this method can be used only on small estates, or in a country where labor is very abundant, and to be procured at a low price; I do not doubt, however, that there are some localities where it could be conducted with profit, if it should be employed from time to time to ameliorate successive portions of land; especially those that have been used for the cultivation of such plants as have long roots.

In the alluvial soils formed by the deposites of the Loire, between Tours and Blois, the farmer reaps from his land a harvest of corn, and afterwards lets it to persons, who turn it to the depth of a foot, with spades, and raise upon it leguminous plants.

From the effects produced by this kind of tillage, we may perceive, that it cannot be employed equally in all soils, or indifferently at all seasons, nor be always carried to the same depth. A light, porous, calcareous, or sandy soil requires less tilling, than that which is compact and argillaceous; and this last requires to be stirred more deeply than the first, because otherwise, the roots cannot penetrate it and fasten themselves in it; neither can the air gain access to deposit upon them its kindly moisture.

Calcareous, sandy, and siliceous soils may be tilled at any time, whilst the argillaceous soils are in a fit state for the plough only at certain seasons, which must be eagerly seized upon by the farmer; the action of the plough upon these lands immediately after rain, only leaves marks in the mud; and if they be allowed to remain till they are thoroughly dry, they become impenetrable by it; the interval between these two periods is the time most fovorable for tilling.

UTILITY OF THE HARROW AND ROLLER.

The best tilling does not always prepare soils entirely for cultivation; some are not sufficiently divided or crumbled; others are not sufficiently levelled, and it is only by the assistance of the harrow, or the roller, that the labor of tillage can be completed. By dragging the harrow in all directions overly a newly ploughed field, the clods left by the plough are turned over, the uprooted weeds are carried off, and a more equal division is given to all parts of the soil. The strength and weight of the harrow must be in proportion to the resistance offered by the nature of the soil. The harrow can be employed advantageously in opening the soil of artificial meadows, especially those of clover, when the surface has become a crust impenetrable by air, or water; the operation of harrowing in this case, should be performed early in the spring of every other year, or immediately after having cut the first crop of fodder; by this means, many plants injurious to the soil are destroyed; and meadows are restored, which would have been constantly deteriorating. I have practised harrowing fields of grain, early in the spring, with great success; and have found the harvests from them uniformly much finer, than from those that had not been harrowed; but it was necessary to pay attention to having the harrows very light, and made with wooden teeth.

The roller I have found to produce an excellent effect after the seed was covered; it unites and levels the surface of the ground, and is particularly useful for porous and light soils; and for those earths of which the constituent particles are fine and light. If such soils have not received a suitable degree of firmness from the roller, high winds and rains are apt to carry off the upper layer, and to leave bare the roots of the plants. Another advantage arising from the application of the roller is, that the soil which has been subjected to it, presents fewer obstacles to the use of the scythe, or of the sickle.

When frosts have bound up the soil, and it has been again set free by thaws, the roots are left almost without support, as the earth scarcely adheres to them: the roller, applied to lands as soon as they are firm enough to admit of its being passed over them, is very useful, as it reunites the earth to the roots, and repairs the injury done by the frosts and thaws.

ARGILLACEOUS, HOW IMPROVED.

A judgment of the mixture necessary for amending a soil, can be formed only from a perfect knowledge of its defects.

A soil in the composition of which the best earths are united, does not need to be improved by the addition of new earthy principles: good tillage and the application of manure are sufficient to render it fertile: but that soil in which any one of the earths predominates to such a degree, as to give a character to the whole mass, requires to be corrected by the admixture of substances possessing opposite qualities. I shall distinguish soils as argillaceous, calcareous, siliceous, and sandy: these divisions seem to comprise all those requiring to be amended; and the quality of the earth predominating in each indicates sufficiently the kind of improvement suitable to it.

An argillaceous or clayey soil is rendered pasty by rains, and it is hardened and cracked by heat; it absorbs moisture from the air only on its surface, but it imbibes abundantly the water of rains, and retains it by so strong an affinity, that when the supply is in excess, it remains till it stagnates and causes the roots of plants to decay.

An argillaceous soil is unfavorable to cultivation, for when it is acted upon by frost, the water contained in its interstices expands by freezing, and the thaw which sets the earth free, divides it into morsels with which the roots of plants have so little cohesion, that they may be drawn out from it almost without resistance: the roots are at such times in the state of newly planted vegetables; they have need of being established, of being fixed to, and united with the soil, in order to vegetate. If in this state a root be attacked by a new frost, it dies; for not being protected by the close adhesion of the soil, the cold acts upon it, as if it were exposed defenceless upon the surface: it is this which render alternate frosts and thaws more injurious to fields of grain, and to artificial meadows, than the severest cold which continues till spring. It is to obviate this evil resulting from a second freezing, that I propose levelling the earth by the roller, after the first thaw.—[*To be continued.*]

He who is most slow in making a promise is most faithful in the performance of it.—*Rousseau.* A promise given after due reflection is little likely to be repented of.

Misfortunes are, in morals, what bitters are in medicine.—*French.* Each is at first disagreeable; but as the bitters act as corroborants to the stomach, so adversity chastens and ameliorates the disposition.

Wit is the god of moments, but genius the god of ages.—*Le Brun.* Wit sparkles like a meteor, and, like it, is transient; but genius shines like a splendid luminary, marking its course in traces that are immortal.

PRICE CURRENT.

ARTICLES.	N. York. April 24.	Boston. April 20.	Philadel'a. April 20.	Baltimore April 18.
Beans white, bush........	1 25.. 1 50	3 00.. 4 00	1 80..2 00	1 75
Beef, best. cwt...........	7 00.. 9 00	7 75.. 9 25	10 0..12 0	9 50
Pork, per cwt............	9 00..11 00	10 00..13 00	11 50	8 50..8 77
Butter, fresh, pound, ...	14.. 15	20.. 25	52.. 31	25.. 31
Cheese, pound, ...	8.. 10	10.. 12	10.. 12	13.. 14
Flour, best, bbl......	7 00.. 9 00	10 25..10 50	9 00	10 0..12 0
GRAIN—Wheat, bushel, ..	1 42.. 1 50	1 60	1 80..2 10	2 00..2 25
Rye, do. ..	72.. 75	1 10.. 1 20	1 40..1 50	90
Oats, do. ..	50.. 62	62.. 65	49.. 53	52
Corn, do. ..	83	90.. 98	90.. 97	94.. 95
SEEDS—Red Clover, lb...	13	14.. 12	9.. 11	10.. 13
Timothy, bushel,.	2 50.. 2 75	2 87.. 3 12	2 50..3 25	3 00..3 50
WOOL—Saxony, fleece, lb.	70.. 75	70.. 75	66.. 73	55.. 60
Merino, lb..... .	55.. 68	60.. 70	58.. 62	45.. 50
1-4 and com. lb...	45.. 50	55.. 58	40.. 44	33.. 36
Sheep, ...	....	10 50		
Cows and Calves, ...	18 00..45 00	30 00..45 00	....	10 0..50 0

RECEIPTS, from March 23 to April 24, inclusive.—Nos. under 10 not noticed.

*Appling, Jeff.		23
Accord, Uls.		11
Andover,	Mich.	15
Adrian,	..	16
*Annapolis,	Md.	110
Ashfield,	Mass.	11
*Ashtabula,	O.	21
*Alexandria,	D. C.	46
Amherst C. H.	Va.	33
Albion,	Ill.	33
*Binghamton, Br.		18
Bovina Center, Del.		11
Byron, Gen.		12
*Butternuts, Ot.		28
Benton, Yates,		38
Broome, Scho.		11
Bloomville, Del.		11
*Bainbridge, Chen.		27
*Bloomfield,	Ky.	33
Beaufort,	S.C.	10
Bell Air,	Md.	11
*Baltimoro,	Md.	42
Belvidere,	N.J.	41
Bloomington,	Ill.	11
Brown's Mills,	Pa.	11
Bethany,	..	11
Buck,	Mich.	11
Berlin,	Conn.	11
Brockville,	U. C.	12
Bolivar,	Ten.	11
Champlain, Clin.		24
*Coxsackie, Gr.		26
Copenhagen, Lew.		11
*Cooperstown, Ot.		37
Clay, Onon.		20
Cincinnatus, Cort.		11
Charleston, Mont.		24
Coeymans, Alb.		11
Champion, Jeff.		14
Cedarville, Herk.		11
Centre Canajoharie, M.		22
Canaan Centre, Col.		32
Chestertown, War.		10
Canaan 4 corners, Col.		18
*Clyde, Wayne,		39
Coventryville, Chen.		11
Crawfordsville,	Ind.	11
Colerain,	O.	22
Cayahoga Falls,	..	11
Conway,	Mass.	11
Cummington,	..	11
*Connelsville,	Pa.	22
Coffee Creek,	..	11
*Carrolton,	Ill.	22
Carthage,	..	22
Centreville,	Mich.	11
Canterbury,	Con.	11
Centreville,	Md.	14
Cranberry,	N. J.	14
Cave Hill,	Ten.	11
Dryden, Tomp.		12
Delhi, Del.		21
Depauville, Jeff.		11
Denton,	Md.	14
Dundas,	U.C.	22
*Deckertown,	N.J.	17
Demascoville,	O.	33
Danbury,	N.H.	10
Dundee,	L.C.	10
East Hampton, Suff.		14
Ellington, Catt.		11
Eldredville,	Va.	10
Everettsville,	..	11
East Hampton,	Mass.	25
Emmettsburgh,	Md.	11
Elizabethtown,	Ky.	22
Fowler, St. Law.		22
Fallsburgh, Sul.		21
Fayette, Sen.		11
Farmer, Sen.		13
Flemington,	N. J.	22
Freehold,	..	22
Fairfield,	Ill.	11
Frankfort,	Ky.	11
Fairfax C. H.	Va.	11
Franklin,	O.	11
Fairfield,	Pa.	11
Gerry, Chaut.		11
Greenbush, Rens.		10
Geneva, Ont.		25
Glen, Mont.		11
*Goshen, Or.		24
*Gorham, Ont.		17
Ghent,	Ky.	19
Grass Hills,	..	22
*Geo'town†R'ds,	Md.	33
*Govanstown,	..	33
*Great Mills,	..	33
Goodwinsville,	Mich.	11
Homer, Cort.		33
Hagaman's mills, Mont.		20
*Hamilton, Mad.		27
Hebron, Wash.		10
Hoosick, Rens.		10
Hartford,	Conn.	10
Hartland,	Vt.	11
Hamboughs,	Va.	11
Hackettstown,	N. J.	11
Highland,	Mich.	11
*Ithaca, Tomp.		23
Johnson's creek, Niag.		11
Jamestown, Chaut.		17
Keeseville, Essex,		12
Kingwood,	N. J.	10
King George C. H.	Va.	22
*Keene,	N. H.	36
Lysander, Onon.		11
Leeds, Gr.		14
*Lafayette, Onon.		22
*Lyons, Wayne,		25
Lisbon,	N. H.	13
Low Hill,	Va.	22
Liberty Mills,	..	13
Liberty,	..	11
Laporte,	Ia.	33
Lexington,	Ky.	11
Lincoln,	Ill.	11
Lottsville,	Pa.	11
*Mamaroneck, West.		18
Madison, Mad.		13
Monroe, Or.		11
Milton, Uls.		16
Marcy, One.		11
Marcellus, Onon.		20
*Mayville, Chaut.		17
Manchester,	Conn.	10
Middlebury,	..	11
Maumee city,	Mich.	11
*Mendham,	N. J.	33
*Murfreesboro,	Ten.	66
Millsburgh,	..	11
Montpelier,	Vt.	11
M'Comb,	Ill.	22
Milan,	O.	11
Madisonville,	Ky.	11
Nichols, Tioga,		12
New Scotland, Alb.		12
No. Penfield, Mon.		11
*New-York city,		41
*Norwich, Chen.		25
Northeast,	Pa.	11
Northfield,	Ky.	10
*Norwalk,	Con.	32
Northhaven,	..	11
Norwich,	..	33
New Britain,	..	11
Nobleville,	Ind.	22
Nuttsville,	Va.	11
Norfolk,	..	11
*Newark,	O.	22
*No. Hartland,	Vt.	37
Nixon's,	N. C.	11
Nantucket,	Mass.	11
*Northampton,	..	100
New Egypt,	N. J.	11
Ogdensburgh, St.Law.		12
Oran, Onon.		22
*Oswego, Os.		22
Orange C. H.	Va.	11
Office Tavern,	..	11
Orford,	N. H.	11
*Plattekill, Uls.		24
Peru, Clin.		11
*Potsdam, St. Law.		33
Plainville, Onon.		11
Pierrepont, St. Law.		11
Prattsburgh, Steub.		13
Penn-Yan, Yates,		15
*Plattsburgh, Clin.		36
Po'keepsie, Dutch.		75
Portland, Chaut.		11
Painesville,	O.	11
Passumpsick,	Vt.	13
*Port Tobacco,	Md.	39
Pikesville,	..	11
*Princess Ann,	..	33
*Port Deposit,	..	22
Pekin,	Ill.	11
Pike,	Wis. Ter.	11
Pembroke,	Mass.	15
Peach Bottom,	Pa.	11
Pine Lake,	Mich.	11
*Quincy,	Ill.	18
Queechy village,	Vt.	11
Rushford, All.		11
Richfield, Ots.		11
*Rome, On.		33
Richmond, Rich.		22
Rutland, Jeff.		11
Ridge Prarie,	Ill.	11
Riders,	Mich.	12
Ridge,	Md.	11
Reister's Town,	..	11
Rumford,	Va.	22
*Richmond,	Va.	33
Rockaway,	N.J.	11
Reading,	Pa.	22
Stone Ridge, Uls.		11
Stockbridge, Mad.		11
Sag-Harbor, Suff.		13
*So. Kortright, Del.		44
*Salem, Wash.		24
Scipio, Cay.		11
Strasburgh,	Va.	22
Surry C. H.	..	33
*Suffolk,	..	44
Stanton,	..	66
*Savage,	Md.	22
*Sandy Springs,	..	18
*St. Michaels,	..	33
*St. Georges,	Del.	14
*Sheffield,	Mass.	21
*Salsbury,	Conn.	23
Stratford,	..	11
Stanwich,	..	11
Stonington,	..	11
*St. Albans,	Vt.	35
Sheldon,	..	11
Shrewsbury,	Pa.	22
Stockport,	..	11
*St. Louis,	Mo.	50
Sullivan,	N. H.	13
*St. Josephs,	Mich.	26
Triangle, Br.		11
Trent Bridge,	N. C.	28
Torringford,	Con.	15
Troy Grove,	Ill.	22
Toronto,	U. C.	22
Union Square, Onon.		11
Unadilla, Ots.		15
Upper Lisle, Br.		11
*Upper Marlboro,	Md.	33
Union,	Vt.	11
Union Village,	..	22
Union Mills,	Va.	33
Union Town,	O.	11
Vernon, One.		11
Vernon,	Ct.	11
Vienna,	Md.	11
Watertown, Jeff.		11
W. Edmeston, Ots.		12
*Warsaw, Gen.		57
Whitehall, Wash.		11
Westmoreland, One.		23
Williamstown, Os.		11
*Washington,	D. C.	30
Westfield,	Vt.	17
Westminster,	..	22
*Woodstock,	..	64
Waynesboro,	Va.	11
Westboro,	Mass.	33
Warwick,	R.I.	33

*Including former paym't.

Total subscriptions received during 32 days, 4,801.

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

VOL. IV. ALBANY, JUNE, 1837. No. 4.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor*.
☞ *Office No. 3 Washington-street, opposite Congress Hall.* ☜
TERMS.—FIFTY CENTS PER ANNUM, TO BE PAID IN ADVANCE.

Special Agents.—JUDAH DOBSON, Philadelphia—Messrs. HOVEY, Boston—ISRAEL POST & Co. Booksellers, 88 Bowery; ALEX. SMITH, Seedsman, Broadway, and G. R. GARRETSON, Seedsman, 111 Fulton-street, New-York.—ALEXANDER WALSH, Lansingburgh, gratuitous agent. Any gentleman who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

AGRICULTURAL IMPLEMENTS.

In pursuance of the recommendation of the State Agricultural Society, the subscribers, a committee appointed for the purpose, will meet at the City Hotel in Albany, *on the second Tuesday in July next*, at 10 o'clock A. M. to examine and test any agricultural implements which may be offered for their inspection; and to certify to the merits of such as they may find deserving of public patronage. Inventors and venders of new implements and machinery are invited to attend, and previously to notify the secretary, J. K. Paige, Esq. of the implements they intend to exhibit, by letter, post paid. June 1, 1837.

JOEL A. NOTT,
A. VAN BERGEN,
JESSE BUEL,
H. BURDEN,
J. P. BEEKMAN.

☞ Publishers of newspapers will render a public benefit by giving a gratuitous insertion to the above notice.

THE TIMES! THE TIMES!!

Are truly distressing, and call for all our fortitude, forbearance and sympathy: fortitude to support us in our own trials; forbearance towards those whom misfortune has placed in our power; and sympathy for the general distress. Although bad—very bad—the times may be worse before they are better. The merchant has felt the first shock, the manufacturer is staggering under the blow, and the mechanic, the farmer and the laborer, are neither of them to escape unhurt. Yet, amid the wreck of fortunes and the consequent distress, there are many individuals, in all classes of society, who have cause to felicitate themselves on their forethought and prudence, in leaving *well enough* alone, without having hazarded their all to *do better*. Yes, prudent industry has ample cause of felicitation; and in no class is this exemption from dire calamity likely more to abound, than among the farmers of the middle and northern states. While the precocious plant, that, like Jonah's gourd, grew up in a night, is blasted by the storm of adversity, the more humble oak of the farm, whose growth has been slow but sure, will remain firmly rooted in its native soil, in despite of the whirlwind, with but perhaps a partial loss of limbs and foliage.

How far the measures of the government have contributed to the present distress, or how far it is in the power of the administration to afford relief, by the revocation of the specie-circular or other means, are questions which it is not our province or intention here to discuss. Yet there are causes, not political, which we may with propriety canvass, and which have had considerable influence in producing the present unexampled commercial embarrassments. It is the province of philosophy, as well as of christianity, to profit by past errors, and, like the bee, to extract honey from the noisome weed. Adversity is a better teacher of wisdom, often, than prosperity, while it is the only school in which many can be induced to learn.

One cause of existing evils, has been a prevalent impatience to get rich faster than one's neighbor, and to live more ostentatiously and extravagantly—as if our happiness, the great object of pursuit, depended more upon reputed wealth and lavish expenditure, than upon a snug competence and a disposition to enjoy it rationally, in the temperate indulgence of our appetites, and the faithful discharge of our duties. The dull, plodding pursuits of labor did not promise soon enough to realize, to many, their golden dreams. Commercial and other hazardous speculations were gone into, and their success was heralded upon the four winds. New adventurers started; property acquired a fictitious value; the unreasonable multiplication of banks and chartered companies opened new facilities of credit, and new fields of speculation; and the belief daily gained ground, that the ruling passion might be soon gratified to an indefinite extent.

The consequence has been, that too many sought to get fortunes by their wits—by speculation—and too few to earn them by their labor. The professions were overstocked—commerce was pushed to an extreme point—the imports in a single year exceeding the exports sixty-four millions of dollars—our citizens became greatly in debt, at home and abroad, and speculation was rife in every quarter of the country, and in every description of property. The shopman, aspiring to the condition of the wholesale merchant, quit the station where his capital and his qualifications fitted him to be useful. Mechanics and farmers, in countless numbers, deeming the employments in which they had prospered too humble for their ambition, and lured on by the successful example of others, either themselves quit their business for more lucrative or fashionable employments, or raised their sons to the *dignity* of the learned or mercantile professions. In this way, multitudes were transferred from the producing to the consuming classes. The latter consequently increased beyond their due bounds, and the former were correspondingly diminished. Extravagance kept pace with the fancied accumulation of wealth; agriculture, the great business of our country, and the main source of our wealth, was greatly curtailed in its products; provisions doubled in price, and the importations of foreign grain became necessarily extensive; until at length settling day has come, and thousands are reduced to bankruptcy, who believed themselves secure in opulence, either by their own indiscretions, or the indiscretions of others. General distrust has taken the place of general credit; commerce is in a manner paralyzed, manufacturers are suspending their operations, and discharging their workmen; the mechanic is curtailing his business; and many thousands are thrown out of employment, who depend on their labor for bread; and property of all kinds is depreciating to its minimum value.

We are not among the number who believe, that an increase of banks in such a crisis would afford relief. To multiply them now, would be like administering opium to a patient whose frame had been wasted, and his health destroyed, by the habitual use of the drug. It might mitigate pain, but it would never restore sound health. We are sick—the disease is seated, and will run its natural course; and when the crisis has passed, the patient will regain his strength and vigor, if he is not dredged with quack nostrums. All that can be done safely, is to make him as comfortable as possible; to watch and profit by the first symptoms of convalescence, and to guard against a relapse.

And what are the lessons which the times teach us? What the means of restoring sound health and vigor to the body politic? We will enumerate some which fall within the particular province of our journal.

And in the first place, and as of the first importance,

We must enlighten, and specially patronize agriculture, by schools of practical and scientific instruction, and by pecuniary bounties—that it may be rendered more productive, more inviting, and more honored. We must wed the hands to labor, and the head to knowledge. Those who have forsaken rural labors, and been disappointed in their utopian dreams of riches and happiness, should return, with the humility of the prodigal son, to a forgiving parent. They will be kindly received, and amply remunerated, on resuming their former duties. Thus we may save to the country the millions which were last year sent abroad, or for which we are still in debt, for foreign bread-stuffs, and bring down the price of provisions to a fair medium standard.

We must protect our manufacturers. Although they have in some cases acted unwisely, and illiberally towards the farmer, and have, in the plenitude of temporary power, forgot right, still they are likely to be sufficiently chastened by present adversity. Their well-being is identified with the prosperity and independence of the country. They work up much of the cotton of the south, the wool of the north, and consume the surplus provisions of all the states. They transform the metals of our mountains into the necessaries of civilized life. They make up the bulk of our domestic commerce. They give employment to millions of worthy citizens, and virtually clothe the nation. They are our brethren, possess with us a common interest in the welfare of our country, and we must rise or fall with them. And we are inclined to think, that resolutions of public meetings of our citizens, to give a preference, to every reasonable extent, to domestic over foreign fabrics, would be alike prudent and patriotic. Many millions of dollars have been embarked in these branches of labor, which must be lost to our country if our manufactories are suffered to go down, to say nothing of the abject dependance their loss will bring us under upon foreign nations, for many of the absolute necessaries of life.

We must live more within our means, and upon our means, and become examples of prudence and economy to our less opulent neighbors. This remark is particularly intended for our cities and villages. Example in the higher orders is contagious, be it good or evil; and those who squander with princely extravagance, inflict the direst evils upon community. They mistake alike their own true dignity and happiness, the spirit of our institutions, and the interests of the country. Our expenses of living have in too many instances been quadrupled during the last thirty years—not for the necessaries and comforts, but for the superfluities and baneful luxuries of life.

We must forego personal animosity, and discard local jealousies and political intolerance. The nation is one family. Whatever directly benefits one class or one district, indirectly benefits the whole; and whatever directly distresses one class or one district, indirectly inflicts injury upon all. The exceptions to this general rule are partial and limited, and are not sufficiently cogent to deter the philanthropist and the patriot from studying to promote, with steady aim, the prosperity of the greatest number. The terms misanthropic, miserly, narrow-minded and selfish, convey reproach, and are classed by moralists among the vices of humanity. Let us endeavor to avoid the odium which they inflict, by practising the virtues to which they are opposed, and which inculcate good will towards each other, and a strenuous and united effort to promote the prosperity and happiness of our country—of our *whole* country.

THE NEW-YORK LEGISLATURE

Adjourned on the 16th ult. after one of the longest session ever held in the state, and without, we believe we speak by general consent, having rendered a corresponding benefit to the public. They did not incorporate any new banks, nor, like the legislatures of some sister states, charter companies to cultivate the beet and plant the mulberry. All this was probably well—for it is now pretty generally admitted, that we have too much of a good thing, if banks may be called such—that we have been so abundantly stimulated with them, as to bring on what medical men call indirect debility—a sort of delirium tremens; and in regard to beets and mulberries, our statesmen very properly judged, that these concerns would be best managed by individual enterprise and industry, like the culture of ruta baga and the planting of orchards. But it has been unfortunate for the state, and we think for the gentlemen themselves, that our wise men had unwittingly, in a spirit of political chivalry, prematurely declared a war of extermination against small bank bills; and that they felt themselves bound by a false and ruinous principle of honor, to persist in their Quixotic course, when the utter impracticability of success became apparent to all, even, we believe, to themselves. The consequence of their refusing to permit the small bills of our banks to have circulation, will be virtually to substitute the small bills of foreign banks in their stead, as a medium of exchange. The banks of other states, in whose stability we have less confidence than in our own, are already filling up the void—and our citizens, driven to the wall—will and must receive and circulate this foreign paper, in despite of the penalty of our laws, which no one is disposed to put in force against offenders. An eastern pedlar brought to New-York, the other day, $3,000 in one dollar foreign bills, and sold out the whole in a few hours, at a premium of three per cent. Our steam-boats are compelled, or at least some of them do it, to obtain from abroad small bills for change, and new plates are now preparing for foreign banks, for extensive emissions of small bills, to serve as a circulating medium in the "Empire State!" Laws, to be respected, should effect a palpable public good; but few, very few, have been able to discover the public good which is likely to result from prohibiting the circulation of small bills.—The provisions of the law have at no time been enforced; and now, we venture to say, cannot be enforced. Is it politic, under these circumstances, to continue it in operation, and thereby weaken the attachment which every good citizen has to law and order?

Winter products of a Devon Cow.—At our request, Abm. P. Holdrich, Esq. of Spencertown, had an accurate memorandum kept of the butter made from a Devonshire cow, which calved late in autumn. The result was, that from the 19th December to the 18th of January, including both days, there was made from her milk fifty-six pounds of well worked butter, nearly equal to two pounds per day. The cow was fed with roots, hay, and buckwheat bran. Estimating it at 20 cents per lb., the butter made during the month, and in the depth of winter, was worth $11.20; and if we consider this the average product of eight months in the year, the aggregate amount for that period would be $89.60. We need no better illustration than this, of the importance of keeping good animals, and of keeping them well.

The Tomato.—We are receiving new evidence of the utility of this grateful garden vegetable in preserving health, and in curing indigestion, and diseases of the liver and lungs. A writer in the Farmer's Register, says it has been tried by several persons, to his knowledge, with decided success. They were afflicted, says he, with chronic cough, the primary cause of which, in one case, was supposed to be diseased liver—in another, diseased lungs. It mitigates, and sometimes effectually checks, a fit of coughing. It was used in a dried state, with a little sugar mixed with it, to render it more agreeable to the taste. The writer expresses a conviction, that if freely used in July, August and September, it would prove a complete antidote to bilious fever. The tomato, to have it in early use, should be started with us in a hot bed; though if raised in abundance it may be dried, which is our practice, and may be at command through the year. The mode of drying is as follows: "Full ripe tomatos are scalded in hot water, to facilitate the operation of taking off the skin; when skinned they are well boiled with a little sugar and salt, but no water, and then spread in cakes about an eighth of an inch thick in the sun. They will dry enough in three or four days to pack away in bags, which should hang in a dry room." We consider the tomato and rhubarb the most healthy products of the garden.

Professor Rafinesque says of the tomato, "It is every where deemed a very healthy vegetable, and an invaluable article for food."

Prof. Dickson writes—"I think it more wholesome than any other acid sauce."

Prof. Dunglinson says—"It may be looked upon as one of the most wholesome and valuable esculents that belong to the vegetable kingdom."

CROPS AND SOILS TO WHICH THEY ARE ADAPTED.

The annexed table, says the writer of British Husbandry, has been given by Von Thaer, as a classification of soils, which we deem entitled to particular attention, as in some degree governing the course of crops; for, although the real value of every rotation depends, in a great measure, upon the manner in which its several processes are executed; yet, abstractly speaking, some courses must be viewed as better than others, because the crops may be more suitable to the peculiar qualities of the land on which they are to be grown. The last column in the table comprises an analysis of the comparative value of the different component parts, and is the result of many years careful examination of the soils, as well as of the proceeds of the crops, after the deduction of labor and seed.

Nos.	SOILS.	Clay per cent.	Sand per cent.	Carb. of lime, per cent.	Humus per cent.	Value.
1	First class of strong wheat soils,	74	10	4½	11½	100
2		81	6	4	8½	98
3		79	20	4	6½	96
4		40	22	36	4	90
5	Rich barley land,...............	20	67	3	10	78
6	Good wheat land,..............	58	36	2	4	77
7		56	30	12	2	75
8	Ordinary wheat land, ...	60	38	Small quantities in each.	2	70
9		48	50		2	65½
10		68	30		2	60
11	Good barley land, ...	38	60		2	60
12	Ordinary barley land, ...	33	65		2	50
13		28	70		2	40
14	Oat and rye land, ...	23½	75		1½	30
15		18½	80		1½	20

It will be perceived, that the wheat soils possess from 40 to 81 per cent of clay, and at least two per cent of carbonate of lime, which latter seems to be an indispensable ingredient in a wheat soil; and that neither barley, oats nor rye, and we may extend the remark to Indian corn and turnips, require carbonate of lime, though this always gives a chemical and mechanical improvement to the soil, by rendering sands more compact, and more retentive of moisture and manure. Those soils in which sand predominates over clay, are best adapted to the growth of Indian corn and ruta baga, though for both they should be artificially enriched by a good coat of manure.

Nos. 1, 2 and 3 are alluvial soils of the richest quality, and embrace much of the land of secondary formation west of the great Allegany range; and from the large portion which they contain of vegetable mould, or humus, and the intimate state of mixture in which it is found, they are not so stiff as the quantity of clay which they contain would seem to indicate. From the absence of carbonate of lime in our primary formations east of the Allegany, many districts, although having the other earthy ingredients and humus, are not congenial to the growth of wheat.

No. 4 is a fine clay loam, such as abounds in many parts of this state, and is termed our best barley soil; and, although what may be termed strong land, is yet of a texture which renders it easy to be worked; it is consequently evidently suitable to the alternate system of husbandry.

Nos. 6 and 7 are both good soils—the quantity of carbonate of lime compensating, in a measure, for the smaller portion of humus; but necessarily requiring the addition of a proportionate quantity of dung to supply that deficiency.

Nos. 9 to 13 are adapted to the Indian corn crop, always, however, requiring manure to render it profitable. They are of average quality of common tillage land; yet, from want of carbonate of lime, are sensibly improved by mild lime, drawn ashes and marl.

Nos. 14 and 15 are denominated light sands, which, when manured and judiciously managed, by frequent alternation of grass, the application of gypsum, and the pasturing of sheep, may be kept in heart, and rendered productive.

Scarcely any soils contain more than five per cent of humus; but if the staple of the land be loamy, even two per cent will render it fit for the production of grain. The friability of its texture is, indeed, an object of the first importance, for it is a great saving of labor and expense; and if the ground be tolerably well managed and dunged, it can always be maintained in good heart.

The analysis which has been thus given of soils, extends only to the depth of six inches from the surface, without reference to the subsoil, which may greatly affect their value; for however rich soils may be, if that be either too porous or too retentive, they may be rendered, in certain seasons, unproductive. If, however, they contain a layer of nine inches to a foot of good earth, the subsoil may then be considered of little consequence; though a limestone bottom will always command a preference. The exposure, with regard to the sun, and the situation of the land, in respect to its shelter from cold winds, are also objects of such extreme importance, that they may make a difference in point of climate equal to several degrees of latitude. This should serve as a hint to those who commence improving new farms, or who have wood lands in reserve, to leave a belt of wood on the exposed quarters of their farms or fields.

Our readers will be able to perceive from the foregoing, that it is of importance to the farmer to be able to ascertain the composition of his soils. The analysis of soils may be taught in our schools, as readily as a rule in arithmetic—if our schoolmasters knew how to teach the process.

GARDEN AND TURNIP HOE.

We are indebted to the kindness of T. Collins, of Burlington, N. J. to whom we tender our thanks, for a set of hoes of approved model, for the garden and for cleaning turnips. It is stated that these hoes were invented about twenty years ago, by Nathan Stowell, and that they are now extensively used in New-Jersey. They are truly, says our correspondent, a "*first rate tool*"—and we fully concur in his opinion. They may be termed the skim *draw* hoe, in contradistinction to the Dutch *shove* hoe, are more easy of management, and are much better adapted to the cleaning of garden and turnip crops than the latter. They resemble somewhat the turnip hoe, heretofore described and figured in the Cultivator, though they excel it in neatness and material The cutting part is made of a buck or billet saw blade, in which, while *cold*, the rivet holes should be punched, in order to retain the temper of the steel. The angle of inclination, of the blade to the handle, should be about 45°. Any smith is at liberty to make them. We commend them to the notice of the public.

THE SIBERIAN CRAB APPLE,

One of the most ornamental trees about our dwellings, whether we regard its foliage, its flowers, or its fruit, is becoming the prolific parent of new and valuable varieties of the apple. The peculiarities of the Siberian crab apple tree are, hardiness, coming originally from the north of Asia, beauty of form and foliage, and early and abundant bearing. Knight employed it in most of his artificial crosses, or fecundations of the apple, and obtained the Foxley, Siberian Harvey, Siberian pippin, Yellow Siberian, and Siberian bittersweet, fruits in high repute, in England, for cider, &c. as the result of the cross. J. A. Thompson, Esq. of Catskill, a great amateur in fruits, has obtained from seeds of the Siberian crab, fecundated naturally with his orchard fruits, some dozen or fifteen new varieties, partaking more or less of the foreign parent, but all differing from it. They are of various shape, color, size and flavor; some keeping till April, some fine for eating, and others excellent for preserves. We have some six or eight of these varieties now growing in our grounds.

SWINE.

The Hog is one of our most valuable domestic animals, and when well managed, contributes essentially to the profits of the farm. He devours, and turns to profit, the refuse of all eatable things. But the hog differs, in the return which he makes in flesh for the food he consumes, as much as the ox or the sheep. The great point in all is to produce the most marketable flesh from a given quantity of food. A good pig is judged therefore, by the same criterion as neat stock. "Depth of carcass, lateral extension, breadth of the loin and breast, proportional length, moderate shortness of the legs, and substance of the gammons and forearms, are considered great essentials. In proportion as the animal is capacious in the loin and breast, will be generally the vigor of his constitution; his legs will be thence properly extended, and he will have a bold and firm footing on the ground, to which, however, it is farther necessary, that his claws be upright, even and sound." A short, handsome, sprightly head, with light pointed pendulous ears, are also considered good indications by Lawrence. The best breeds are often thick skinned and thin haired; but the skin is tender, gelatinous, and easy to masticate. It is an unfavorable indication when the head is hung down, "the mouth approaching the earth like a fifth leg, and when the flanks heave and are hollow." Most of the approved breeds have been produced by a cross with the China boar. Good breeders insist that the sow should not produce pigs before she is ten months old, and that the male should not be used after he is five years old.

The pig is kept well in summer upon clover pasture, with the swill from the kitchen and dairy; and the fattening process may be completed, almost wholly, with the apples, pumpkins, small potatoes, soft corn and bran of the farm, properly prepared.

In regard to the diseases of hogs, of which a correspondent in Virginia, Mr. Goldsborough, asks information, we may remark, that prevention of disease is much easier than cure; as relief can seldom be effected after the animal ceases to eat. As preventives, carbonaceous matters, as charcoal, rotten wood, and even permission to root in the earth, sulphur, antimony and madder, are recommended. They are subject, says Lawrence, to measles, blood-striking, staggers, quinsy, indigestion, catarrh, peripneumony or inflammation of the lungs, called heavings. "As aperients, cleansers and alteratives, sulphur, antimony and madder, are our grand specifics, and they are truly useful. As cordials and tonics, treacle and strong beer, in warm wash, and good peas or corn meal and pollard (shorts). In measles, sulphur, &c. and if the patient requires it, give cordials now and then. In staggers, bleeding, fresh air, and perhaps nitre. In catarrh, a warm bed, and warm cordial wash; and the same in quinsy, or inflammation in the glands or throat. If external suppuration appear likely, discharge the matter when ripe, and dress with tar and brandy, or balsam. The heavings, or unsoundness of the lungs in pigs, like the unsoundness of the liver in lambs, is sometimes found to be hereditary; there is no remedy. This disease in pigs is often the consequence of colds from wet lodgings, or of hasty feeding in a poor state; in a certain stage it is highly inflammatory, and without remedy. Unction with train oil, and the internal use of it, have been sometimes thought beneficial."—*Loudon.*

FORTY-THREE YEARS AGO.

We continue our notices of the "Transactions of the Society for the promotion of Agriculture, Arts and Manufactures."

In 1793, in consequence of a request made by the society, the New-York Chamber of Commerce issued directions to captains sailing on foreign voyages, to collect and bring home, rare seeds, plants, &c. for the improvement of our husbandry.

Chancellor Livingston delivered the second address before the society, abounding in the good sense and patriotism which always distinguished that gentleman's writings. We make some extracts from this address, for the benefit of the young and the middle aged—of the politician and the statesman. They have peculiar force at *this time.*

"How much is it to be lamented, that indolence, or pursuits of little moment, withdraw the attention of men, whose lights, whose talents for observation, and whose fortunes enable them to be useful, not only to the community of which they are members, but to mankind at large; not to their cotemporaries only, but to future generations. One great cause of the neglect of agriculture in men of the character I have mentioned, is a misplaced ambition, which generally seizes upon them at the very period of life at which they are best fitted for agricultural pursuits. Youth has too many avocations, and is too unsteady to pursue the slow progress of experiments, and the decrepitude of old age deprives it of the strength and activity necessary in rural economy ; it is the season of life in which we may enjoy the sedate pleasures of the country, but not undergo its toils. The middle age, when the effervescence of youth is over—when the body retains its strength, and the mind enjoys its greatest vigor—is the period best adapted to the useful labors of agriculture ; but unfortunately this is also the age of ambition, which hurries us away from the peaceful path, where every step is strewed with flowers, to lose ourselves in the endless mazes of politics. And yet, if ambition is the love of fame, how much are we deceived by pursuing it in this rough and thorny track ! The little politics of our town, our county, or even of our state, are mere matters of a day ; and however important they may seem in our eyes, while we are ourselves the actors on this busy stage, they will appear to others of too little moment to arrest their attention. Our fathers were politicians, their fathers were politicians, and yet we hardly know the parts they severally acted, or even the names or principles of the parties they opposed or supported. In like manner, the intriguing politicians and the wordy orators of the present day, will be buried with their principles and their parties in eternal oblivion, when the man who has introduced a new plant, or eradicated a destructive weed ; who has taught us to improve our domestic animals, or to guard against the ravages of noxious insects ; who has invented a new implement of husbandry, or simply determined the angle the mould-board should make with the plough-share, will be remembered with gratitude, as the benefactor of society.

"It is the politician's misfortune to believe that every thing is wrong which he does not direct, and that the ruin or welfare of the state depends upon the adoption of his principles: and yet the world was governed before he was born, and will be so well directed after his death, that his present political existence will hardly be remembered one week after his funeral. As the pursuit of fame by the road of politics requires infinitely more talents than falls to the share of the great bulk of mankind, and great epochs or extraordinary circumstances to call those talents into action, but very few can hope for political fame, while their pursuits have a direct tendency to injure the finest feelings of the mind, and to add poignancy to the most painful passions.

"The thorough-paced party politician concurs in many measures that he does not approve; he confides in men that he secretly despises; he opposes the measures of his antagonist, though his reason tells him they are proper. His sins of omission and commission daily stare him in the face, and if ever he finds time to pray, he must confess in the words of the Common Prayer, that "he has done those things which he ought not to have done, and left undone those things which he ought to have done;" while with a distrustful eye he is compelled to guard against the defection of his partizans, he indulges the most rancorous resèntment against his antagonists: thus jealousy and hatred, those painful passions, are nourished like the vulture that feeds on the liver of Prometheus, to prey on his vitals. Rural life is exempt from these evils. The husbandman hates no one, because he dreads no rival. If his neighbor's field is more productive than his own, he borrows a useful lesson, and turns his prosperity to his own advantage. Two important maxims are ever in his mind—first, that the earth yields nothing to the idle and the negligent; second, that though labor will do much, yet the return it meets will often depend upon circumstances which it is not in his power to command. He is therefore at once satisfied with the necessity of using the *means*, as the divines say, and of his dependence on the Supreme Being for crowning them with success; thus reconciling (at least in an earthly sense) the intricate doctrines of *works* and *grace*.

"The constant attention that the farmer is compelled to give to the wants of his domestics, and to the animals under his care, render him habitually compassionate, humane, and careful; and, if happiness is to be found on earth, it must certainly be sought in the indulgence of these benign emotions. As Cicero sums up all human knowledge in the character of a perfect orator, so we might with much more propriety claim every virtue, and embrace every science, when we draw that of an accomplished farmer. He is the legislator of an extensive family, and not only men, but the brute creation, are subjected to his laws. He is the magistrate who expounds and carries those laws into execution. He is the physician who heals their wounds, and cures the diseases of his various patients. He is the divine who studies and enforces the precepts of reason; and he is the grand almoner of the Creator, who is continually dispensing his bounties, not only to his fellow mortals, but to the fowls of the air and the beasts of the field.

"To the disgrace of this state it has so happened, that though it has always possessed men of distinguished talents, the rage for party politics, and dissipation, have defeated every attempt to establish any society for the promotion of arts, agriculture, or any literary or scientific object. How many now hear me, who are capable of wiping off this reproach; who have ample means of doing honor to the state, by promoting that of this society, but who have yet offered it no aid! The exertions of a few friends to useful knowledge have enabled us to struggle through three years; and I would fain hope, that many now present will step forward to our future support."

Times were much then as they are now. Men heeded not the humble claims of honest labor—it had nothing to offer to their avarice or ambition—and legislators then, as now, were afraid of being thought rustic or low minded, if they became the champions of farmers' rights.

A SUGGESTION FOR THE COMING YEAR.

A gentleman of high respectability informs us, that the following mode of sowing winter wheat in the spring, has been partially adopted in Tennessee, with the happiest success. In early winter the seed grain is put into casks, and water enough added to soak and cover it. It is then exposed so that the water becomes frozen, and it is kept in this state as far as practicable until the soil is fit for its reception in the spring. It is well known that the operation of frost upon the seed of winter grain has the same effect as if it is sown in autumn—as wheat or rye sown at the setting in of winter will grow and mature. The advantages which are experienced from sowing in the spring, are, 1st, that the grain is not subject to be winter killed; 2d, it escapes the hessian fly in autumn, and possibly it may escape it in the spring; 3d, the ground being fresh stirred for spring sowing, the growth will be more vigorous; and 4th, as it will come into ear late, there is at least a probability that the crop may escape the grain worm. The advantages are so manifest, that the experiment is worth a trial; and we shall feel obliged to some Tennessee correspondent who will give us the details and result of the practice in that state.

TILLAGE HUSBANDRY.—THE TURNIP.

All British writers agree, that the introduction of the turnip culture into Great Britain, which is of comparative recent date, has contributed more than any other improvement in rural economy to the advancement of agriculture. This culture is of very recent introduction here, and indeed may be said hardly yet to have obtained a footing among us. Yet from the limited experiments which have been made, and from the rapid extension of the culture within the two last years, we have reason to believe our climate and soil are well adapted to the growth of this root; and that although it requires some extra labor to secure the crop for winter and spring use, it may nevertheless be cultivated here to great advantage.

The benefits that result to the farmer from the culture of turnips, as a field crop, are three-fold, viz: 1. They serve to ameliorate the soil, and are excellent as a green crop, to alternate with grain and grass. 2. They afford the most animal food, at a given expense, on a specific measure of land. And 3. They return the greatest quantity of manure to the soil. The turnip, like the clover and root crops generally, not only exhaust the soil least, but make up for this exhaustion, in a measure, by dividing and pulverizing the soil, and freeing it from weeds. Although 20 tons an acre may be deemed a fair average crop, the product has in many cases been carried beyond 60 tons. They come in use at a season when succulent food is most in demand; they are eaten by all kinds of farm stock, and constitute, in Britain, the principal material for winter fattening beef and mutton. It will be seen in our March number, that turnip feed is estimated to add one-quarter to the dung of the cattle yard. These considerations induce us to add to the facts we have already published, in regard to the turnip culture, such others as may tend to increase their growth among us.

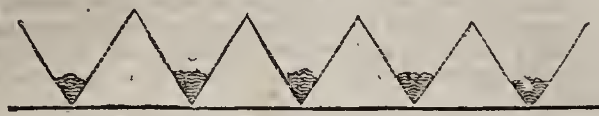
Soil.—"The *soil best adapted to turnips* is of a dry bottomed, free nature, of some depth and fertility; but, although distinctively termed 'turnip land,' it yet comprises every species of earth which can be profitably used for any arable purpose, provided it be light, dry and friable: consequently exclusive of heavy clays. It must, however, be understood, that although the common root can be grown on the poorest sands and gravels, yet there are some species which require stronger soils—even rich free loams; and they all demand very careful culture, with an abundant supply of manure. The plant delights in a cool, temperate and moist climate," and therefore will thrive best in the northern section of the union, and in elevated districts.

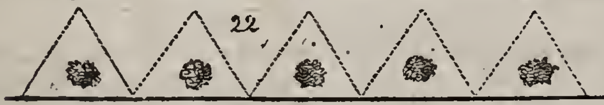
Species.—Although the varieties are numerous, the British writers class them under the heads of white and yellow species, and Swedish. The latter has gained a decided preference, on account of its superior richness and long keeping property. Yet, as affording earlier feed, and as enabling them to preserve the Swedes till late winter and spring, the extensive turnip growers in Europe generally cultivate also the white and yellow. The white turnips,—the white globe is preferred,—are fed first; the yellow, which are richer, and keep longer than the white, particularly the Aberdeen yellow, are fed next, and the ruta baga last. The roots of the Swedish are at least one-third heavier than the other species; and their tops are so much more palateable, that cattle, after being fed upon them, will not eat the common kinds, unless impelled by hunger. They are besides more hardy—a large quantity having stood the severe winter of 1835-6, in the open ground, without material injury; though it should be mentioned that they were sown very late, and had not attained their natural growth. They differ in another respect from most other roots—the larger they grow, the greater is their specific weight and nutritive properties. We will add another remark—there are varieties of the ruta baga, differing greatly in excellence. The true sort has yellowish flesh, a globular shape, and is without a stem; but it is apt to degenerate by the flesh becoming white, or by the crown running up into a stem of more or less length. None but the true kind should be employed for seed.—Besides, this species requires a richer soil than will grow the other kinds.

Seed and Sowing.—The time of sowing should vary according to the kind and the climate. It has been suggested, that if the white and yellow were sown in April or May, as in Britain, they would afford fattening materials for cattle and sheep in September and October. We do not know that the experiment has been tried, but we doubt its success, on account of the heats of our summer being unfavorable to their growth. From several years experience with all the kinds, we recommend, for this latitude, from the 20th June to the 1st of July for the ruta baga; from the 5th to the 15th July for the yellows and globe, and from the 20th to 30th July for the flat red and green top—the first of these periods for cold soils and elevated districts, and the latter for warmer situations. For table use, where large size is an objection, the Swedes may be sown in the early part of July, and the flat kinds early in August. Half a pound of good seed will give plants enough for an acre, put in with a drill barrow; yet as many seeds will not vegetate, and as the plants are liable to be destroyed by the fly, we generally allow a pound of seed to the acre, and some give double this quantity. The seed should be full bodied and black, the green and yellow often proving abortive.

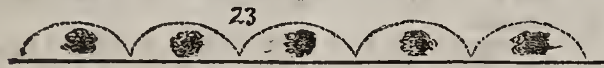
Culture.—The drill culture is decidedly best for the Swedes, and for the other large varieties, on account of the greater facility of cleaning and stirring the ground with the cultivator among them. The British writers recommend ploughing directly after harvest of the preceding year. This would be a waste of labor and of ground here. Early southern clover may be cut in time to put in even the Swedes here, and our small grain is off the field here generally in time to sow the white and yellow as a second crop upon the stubble. And at all events, if the crop is put on tilled land, the more recent the ploughing and harrowing before sowing the better. If sown broadcast, the ground should be afterwards rolled, and the crop hand hoed and thinned as soon as the plants have well put forth their first rough leaves. The manure, which should always be applied to this crop, is differently applied. If long manure is employed, we would prefer to have it spread and covered with the plough; though if it is applied moist, or is immediately after covering saturated with an abundant rain, it may be advantageously applied in the drills. There is a greater propriety in applying short manure, or bono dust, in the drill to this crop, than to almost any other, as the roots gather their food within a limited space.—We have seen short muck applied as a top dressing to the common turnip, when sown broadcast, with the best effect. When cultivated in the drill system, with the manure deposited in the drills, the usual distance between the rows is 27 to 30 inches.

Fig. 21.

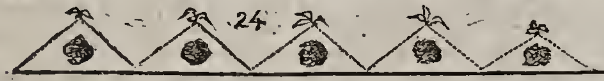




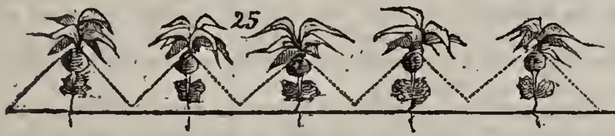
22



23



24



25

Explanation of the cuts.—Fig. 21, shows the ridgelets, when the dung is placed in the drill; then the dung covered with the plough, fig 22; rolled and the seed sown, fig. 23; the young plants with the earth hoed away from them with a curved coulter, fig. 24; the plants further advanced, covering the soil with their leaves, and enjoying the dung with their roots, fig. 25.

In sowing, the drill barrow, of which several kinds are now for sale, is the best implement to use. A man walks briskly forward with one of these before him, propelled like a wheel-barrow. The drill is made, the seed sown, covered, and, by some the ground rolled, as he advances. Where this implement cannot be had, a small implement formed like a pepper box, with holes at one end, and fastened to the end of a walking stick, and followed by a man with a rake to cover the seed, may be substituted. Sow upon the fresh stirred soil.

After the sowing is completed, the plants generally make their appearance in from five to eight days; and if the weather is showery, they will soon grow into what is termed the rough leaf, when they are a couple of inches high. The process of horse hoeing then commences, by running the cultivator, or light plough, up and down between the rows, as near to the plants as can be done without injury, or within three inches of them, so as to cut up any weeds that may have sprung up. In two or three days this should be followed by the hand hoe. The weeds should all be eradicated, and the plants thinned, by drawing the hoe crosswise of the row, so as to leave them standing single at the distance of eight or ten inches. The cultivator may be subsequently once or twice passed again between the rows, and the few weeds that will spring up be destroyed. The turnip crop may be advantageously followed with spring wheat or barley.

Quality.—The relative portion of nutriment afforded by each of the following species, has been estimated by the late Mr. George Sinclair, as amounting, in 64 drachms, to

White tankard,.....	76 grains.	Norfolk white,...	83 grains.
Common white loaf,	80 "	Stone or garden,.	85 "

and Swedish turnips, 110 grains.

The *Turnip fly* is the greatest enemy to the crop; and although many preventives have been recommended, no particular one seems to have given full confidence. Soot and quick-lime have been strewed along the drills, and on the young leaves, at the rate of six bushels per acre, with good success. This mixture is applied when the leaves are dry. Some sow radish seed with their turnips, which first attract the fly. The London Society of Arts awarded a gold medal for this mode of prevention, which consists in drilling, thick, a row of common turnips between the rows of ruta baga. The fly destroyed the former, and spared the Swedes.

Gathering the crop.—The roots may be generally drawn by the hand, or with a potato hook. They should be topped and tailed, and be permitted to lay upon the ground till the loose dirt separates from the roots. We have described the best mode of performing these processes in two or more of our numbers. They should not be cut too close, nor the roots wounded, lest it causes them to rot.

Storing.—They may be stored in cellars or pits, as before described. Let the pits not exceed three feet in breadth, raise the roots a foot above the surface of the ground, sloping from the sides to the centre, cover with a good thickness of earth, and by all means take care to ventilate at the crown of the pile, to prevent the roots heating and becoming rotten.

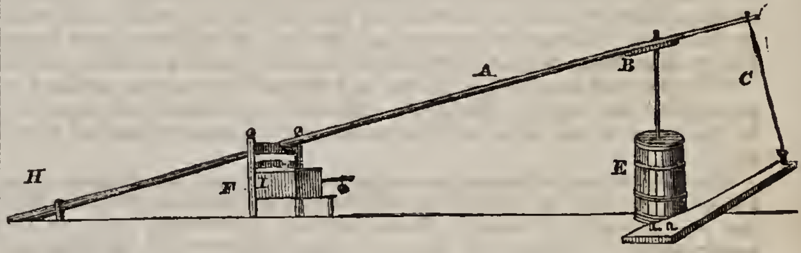
Use.—The ruta baga, in particular, is eaten by all farm stock,—sheep and oxen are fattened upon them. They are almost invariably fed raw, but require to be cut, or sliced. There are machines for doing this in a summary way; but the labor is readily performed with a spade or meat smirk.

"The extended culture of the turnip," says Prof. Lowe, "has enabled us to carry the practice of breeding and feeding our domestic animals to a state of perfection, in which no other country has yet been able to rival Great Britain. The cultivation of the plant in rows, instead of the former method of broadcast, may well be regarded as an improvement of the highest importance. It has enabled the farmer to secure abundant returns, which the former methods of cultivation did not admit of, and so to increase the number of useful animals, that may be maintained upon the farm, and to subject the lighter soils to a species of culture more beneficial than any other that had been before devised for them."

SPRING POLE AND TREADLE CHURN, &c.

John Low, of Milford, Otsego, has sent us the drawing of a spring pole power, which he applies to churning, washing and pressing cheese; and which he says may also be used to crush apples, corn, barley, to cutting fodder, &c. The pole may be either placed diagonally, as in the cut, or horizontally. A. is the spring pole, made firm at the butt end; B. is a strip attached to the pole, through which the handle of the churn or beater passes, and which is fastened to the pole by an iron bolt, removable at pleasure; C. is a cord by which the tread board is attached to the end of the spring pole; D. the tread board, to which the power is applied; E. the churn or wash tub; F. the cheese press. How far this power may be made useful for family uses, we are unable to say, except from Mr. Low's representation, who speaks of its great utility in his family. As no patent right is claimed, any farmer may satisfy himself in the matter, without much expense or loss of time. Steel rods or springs may be used on the same principle.

Fig. 26.



PRESERVATION OF HEALTH.

Health is truly classed among the first blessings of life; and it requires no argument to prove, that it is easier to prevent diseases than to cure them. These considerations have induced us to publish, in our preceding volumes, several articles on the prevention of disease, from Roget, Combe, and other high medical authorities. The subject which we now offer for consideration, is

THE IMPORTANCE OF FRESH AIR.

According to the best authorities, a man inhales, or takes into his lungs, from six to ten pints of air at every respiration, or breath. This air comes in contact with the blood in the lungs, and both the blood and the air undergo a material change in consequence. The blood imbibes a portion of the oxygen from the air, assumes a florid red hue, and acquires thereby the power of supporting life, and fits it to become a part of the living animal. The air receives, in return for the oxygen, or vital air, which it gives to the blood, about an equal portion of carbonic acid, which vitiates it, and renders it unfit for further respiration; or, if this vitiated or impure air is again respired, the blood becomes likewise vitiated by its contact with it, and all its functions become more or less disordered. Atmospheric air consists of about 79 parts of nitrogen, 21 of oxygen, and nearly one of carbonic acid. A greater or less quantity of oxygen unfits the atmosphere for animal respiration, and causes disorganization and disease in the animal system. When atmospheric air is inhaled upon the lungs, it parts with eight or eight and a half per cent of its oxygen, and receives in return a like quantity of carbonic acid. Thus atmospheric air becomes rapidly vitiated by being breathed, and is as speedily restored to its purity by healthy vegetation, which takes up the carbonic acid, or decomposes it, and gives off, or sets free, oxygen. According to Dr. Bostock's estimate, an averaged sized man consumes about 45,000 cubic inches of oxygen, and gives out about 40,000 of carbonic acid in 24 hours. "Taking," says Dr. Combe, "the consumption of air at 20 cubic inches at each breathing, as a very low medium, and rating the number of respirations at 15 in a minute, it appears that, in the space of one minute, no less than 300 cubic inches of air are required for the respiration of a single person. In the same space of time, 24 cubic inches of oxygen disappear, and are replaced by an equal amount of carbonic acid; so that in the course of an hour, one pair of lungs will, at a low estimate, vitiate the air by the abstraction of no less than 1,440 cubic inches of oxygen, and the addition of an equal number of carbonic acid, thus constituting a source of impurity which can not be safely overlooked." See Combe, chap. vii.

Atmospheric air becomes vitiated principally by one, or a combination, of the following causes:

1. By animal respiration.
2. By decaying animal and vegetable matters.
3. By stagnant waters; and
4. By combustion in close apartments.

Many cases are cited of the fatal effects of breathing highly vitiated air, in prisons, in small close apartments, and in unhealthy districts. One of the most horrible was that which occurred in the Black-Hole of Calcutta, where one hundred and forty Englishmen were thrust into a confined place, eighteen feet square, in which there were but two small windows on one side, and where ventillation was impossible. Scarcely was the door shut upon the prisoners, when their sufferings, for want of fresh air, commenced, and in six hours ninety-six of them were dead! In the morning only twenty-three of them were living, many of whom were subsequently cut off by putrid fever, caused by the dreadful effluvia and the corruption of the air. Other cases are recorded of persons dying, for want of fresh air, in small close cabins; and the numerous cases annually recorded of deaths caused by burning charcoal in close apartments, is to be attributed to the consumption of the oxygen, and the generation of carbonic acid by the combustion of the charcoal. But it is not only where death ensues that the breathing of vitiated air is hurtful; it is *always* prejudicial, more or less to health; it impairs the constitution, and is often the latent cause of diseases which ultimately prove fatal. "The chief symptoms," says Orfila, "which follow the breathing impure air, are great heaviness in the head, tingling in the ears, troubled sight, a great inclination to sleep, diminution of strength and falling down." These sensations are experienced in crowded, heated rooms, in steam boat and canal boat cabins, &c.

Decaying animal and vegetable matters are a prolific source of disease, by vitiating the atmosphere we breathe, particularly in cellars, close yards, or other places where the effluvia they generate is not speedily dissipated by the winds. Hence fevers are most prevalent where due regard is not had to cleanliness, as over dirty cellars, near filthy yards and lanes, and in dwellings in and about which animal and vegetable matters are suffered to accumulate and putrify. Hence the sickness that pervades new countries, by the decay of vegetable matters, on the first exposure of the soil to the sun.

The deleterious influence of stagnant waters upon the atmosphere is known to all; and when combined with animal and vegetable putrefaction, the evil is greatly increased. Hence nothing contributes more to the healthiness of a neighborhood, than the draining of swamps, marshes and wet lands.

Combustion also vitiates the atmosphere in close rooms, particularly gas lights—a single gas burner consuming more oxygen, according to Combe, and producing more carbonic acid gas, to deteriorate the atmosphere of a room, than six or eight candles.

Among the precautions which these facts suggest, for the preservation of health, we may mention the following.

To locate our dwellings on dry grounds, and in airy situations, remote from stagnant waters. The cellars should be dry, with windows at opposite sides, if practicable, for ventilation, whenever the weather will permit, and they should be kept free from all putrifying vegetable matters. The rooms should be lofty, and rather capacious than contracted, and should open, by windows, to the exterior, and should be all ventilated every fair morning in summer. It adds to the beauty of rural abodes, as well as to the comfort and health of their inmates, to surround them with fruit and ornamental trees. The offices and structures for farm stock should not be contiguous to the dwelling, nor should the cattle or swine be permitted to range and litter about it—perfect cleanliness should be observed in and about the house, if we would breathe a pure atmosphere.

In regard to our personal habits, these facts inculcate the propriety of taking frequent exercise in the open air, particularly in summer mornings, when it is most pure and fragrant—of avoiding close crowded apartments; of accustoming ourselves to a medium temperature in our dwellings—of sleeping in rooms without fire, with open doors, that fresh air may at all times have access, and of not lodging too many persons in the same room.

These rules, accompanied by temperance in our diet, and in the indulgence of our passions, and by a strict regard to cleanliness in our persons, would greatly reduce the amount of human sickness and misery, would multiply our comforts, and prolong life.

Pure fresh air is not only essential to the health of man, but to every animal under his control, and even to the healthful development and maturity of the plants he cultivates.

STEEPING SEED GRAIN,

Is objected to by a correspondent in our last, as a general practice. In addition to the reasons which we then urged in its favor, we find a fact recorded in the transactions of the old agricultural society, which, if true, affords a potent argument in favor of steeping at least seed corn. Robert Johnson, Esq. then a senator from Dutchess, states in vol. 1 of the transactions, that steeping seed wheat in a pickle of salt-petre had the effect to facilitate its ripening two weeks, and to increase its product at least 25 per cent, as was evidenced by a comparison with wheat sown in the same field, in which salt petre had not been used in preparing the seed. It was this article which led us into our practice of using salt-petre in our steep for seed corn, and which we have followed for sixteen years. The effect here ascribed to the nitre may seem incredible; and still it is not more so than that produced by gypsum upon clover, to a person who has never witnessed the effects of the latter, upon a hungry sandy soil. We know but little yet of the specific food of plants; and the importance of Mr. Johnson's suggestion should at least induce us to try the experiment, comparatively.

RULES FOR PLOUGHMEN.

1st. The horses should be harnessed as near to the plough as they can be placed without impeding the freedom of their step; for the closer they are to the point of draught, the less exertion will be required to overcome the resistance.

2d. When ploughing with a pair abreast, the most powerful horse should be worked in the furrow; but if the team be harnessed in line, and there be any difference in the height of the cattle, the tallest should be put foremost, if he be in every respect equal to the other.

3d. When at work they should be kept going at as regular and good a pace as the nature of the work will permit; for they are thus more manageable, and the draught easier than when slow. By due attention to this, the heavy soil will also cling less to the coulter, and the land will be found to work more freely.

4th. The breadth and depth of the furrow being ascertained, the plough should be held upright, bearing equally all along on a straight sole, and be made to move forward in a regular line, without swerving to either side. The edge of the coulter should be set directly forward, so that the land-side of it may run in a parallel line with the land-side of the head, and in such a position that their slant, or sweep, may exactly correspond.

5th. The ploughman should walk with his body as nearly as possible upright, without leaning on the stilts, and without using force to any part, further than may be absolutely necessary to keep the implement steadily in a straight line. He should also be sparing of his voice, and of correction to the team: of the former, because too much cheering and ordering only confuses the cattle; and of the latter, because punishment, when often repeated, at length ceases to have due effect, and thus leads to unnecessary beating.

There is, in fact, a certain degree of taste in ploughing, as well as in every thing else,—a kind of tact, which is difficult to be taught, and hardly to be acquired except by a sort of instinct. The ploughman who tills the ground with dexterity, never presses upon the plough without necessity—a mere touch, or a glance of the eye, tells him when she is going wrong, and a slight turn of the hand sits her instantly right; whereas a clumsy fellow, without feeling in his palms, or readiness or perception, is continually either throwing the plough out, or she is riding upon the heel or point, straining the team, tiring himself, and altogether making bad work.

There are various modes of regulating *the pitch of the plough.* Thus it may be made to go deeper by lowering the back bands, or increasing the distance of the team, by setting the muzzle higher up in the index of the beam, and by slanting and giving the coulter a greater rake forward; and the reverse will make it go shallower. It can also be constructed with a regulating lever, which may be attached to any of the foot and wheel ploughs now in use, and can be used occasionally, or otherwise, as circumstances may require. The side motion may be thus altered so as to make the plough take a broader slice, or, as it is commonly called, "to give her more or less land:" by putting the hook of the traces into the notches of the muzzle more towards the unploughed ground, *you take land from the plough;* but by shifting it to the furrow-side, *you give it land.* It ought, therefore, to be made about eight inches in length, and may be fixed either to the side of the beam, or to the top and bottom, as here described.

Fig. 27.

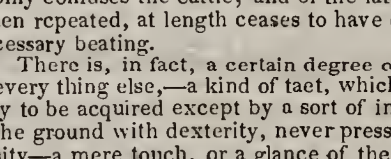
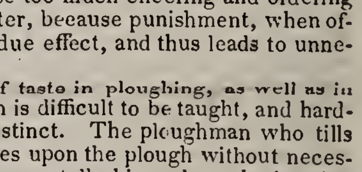


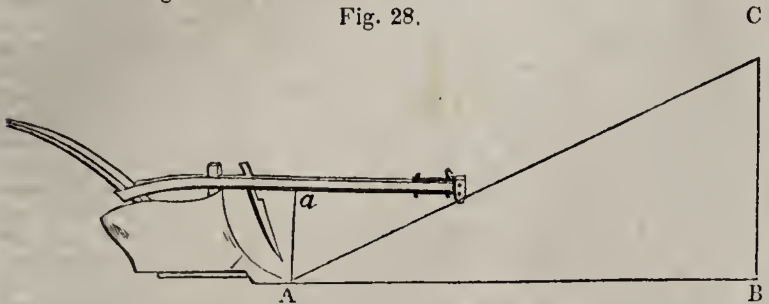
Fig. 28.



The ploughman may also give greater breadth by pressing the stilts towards the right; though it is a bad plan, and requires too much exertion to be continued throughout a day's work.

On the *subject of draught,* it may be observed, that when horses are properly harnessed to the plough, their traces will be in a direct line, from the point of draught at the shoulder, to the point of the share, passing through the regulating notch of the muzzle. It is proper, therefore, to ascertain the animal's height, in order that the muzzle may be fixed accordingly; but as his shoulder is not so far from the ground when he is pulling, as when he is in a state of rest, an allowance must be made for the difference. Thus if a line be drawn from A, at the share of the plough, to B, and then a perpendicular line from B to C, at the horse's shoulder, an angle is formed; then if another perpendicular line be formed from A to *a*, and measured upon the same scale, it will give the height of the beam from the ground, at the depth at which it is to be ploughed.

Fig. 28.



It follows, therefore, that the more the beam is raised in height, the longer it must be made, and consequently the traces of horses must be lengthened: this, however, lessens their power; for it is sufficiently well known, without entering into any mathematical proof upon the subject, that the farther the animal is placed from his work, the less effectual will be his exertions. The Rev. Mr. Priest made this experiment, with a furrow 9½ inches wide and 3¾ deep; when the length of the horses' traces was 10 feet 5 inches from the point of the share to the point upon their shoulders upon whence they were drawing, the force exerted upon the point of draught of the plough, or the power of their draught, was only 2¼ cwt. but when the traces were lengthened to 15 feet 6 inches, the force exerted to draw the plough was 3½ cwt.—*See Brit. Husbandry.*

SUMMER SOILING.

This term is applied to the feeding of cattle with grass, or grain, or other herbage, cut and fed to them green, in stables, sheds, or yards. It is extensively practised in Flanders, Holland, and other districts on the continent of Europe, and partially in Britain, and particularly in the vicinity of the large towns, where land is in great demand, or where it is naturally rich, or has been rendered so by art. In these cases the profits are palpable, at least twice the number of cattle being subsisted upon the same ground, when the fodder is cut and fed green, as when depastured.

The advantages of the practice are stated to be, the saving of the crops from destruction when in pasture, by treading, staling, dunging and lying down upon them; in economizing food—cattle eating many coarse kinds of grass and weeds, when cut, which they will not touch when growing in the field; in the great saving of manure which it effects; in the advantages of rest and quietude to the animals; in the preservation of the ground from being poached in wet weather; and in the diminished expense of making and repairing fences.

The objections to the practice are, that it prevents cattle from healthful exercise, necessary to the young, to cows and sheep; that upon poor farms the saving in food does not make up for the expense of labor in tending the stock: and that it interferes with the regular routine of farm labor. And, in its application to us, it may be remarked, that we produce neither the tares, the sanfoin, nor but few of the turnips, which make a considerable portion of the soiling food in Europe. Our reliance would be upon early sown winter rye, clover, lucern and the common grasses.

Nicely managed experiments have been made, by some of the most eminent agriculturists of Great Britain, to decide upon the relative merits of soiling and pasturing, some of the results of which we will state in a summary form.

Mr. Curwen, well known to the agricultural reader as one of the most eminent farmers and greatest experimentalists in Britain, and withal a zealous advocate for soiling, instituted a number of experiments, which have been recorded. His first experiment was upon two cows, and the experiment continued from the 14th May to the 1st of October, one being soiled and the other pastured. The soiled beast gained 16 stone, the pastured one 9 stone. The first, after taking into account the relative value of food consumed, paid a profit of 10½d. (say 18 cents) per day: the other of 7½d.

He next took six three year olds, tied them up on the 27th June, and soiled them till the 9th November, *with grass of very little value*, cut from the hedges, plantations and walks, and during the last month had an addition of carrot and turnip tops. They gained 75 stone of flesh, estimated to be worth £17. 10s. or an average of £2. 18s. 4d. each (about $11. 85.)

He next fed 17 calves, beginning when they were two months old. During the first month they had one gallon of new milk per day; for three months afterwards, three gallons. Turnips and hay were given with the milk. From June till October the food was clover; afterwards, till the end of May, turnips. In size they were little inferior to those of double their age. At 18 months old, one was slaughtered. The live weight, 770 lbs.; the carcass weighed 474 lbs., loose fat, 37 lbs. This was an Ayreshire; the Durhams, of which the flock in part consisted, were larger and in better condition, and would have killed 650 lbs. at least.

Mr. Brown, of Markle, made an experiment with 48 cattle, bought in autumn, and wintered in the farm yard. They were equally divided, and on the 4th of May one half were put to pasture, and the other into the yard, where they got a small quantity of Swedish turnips, until the clover was fit for cutting. During June and July, they were subsisted upon cut clover, fed in cribs, and the offal cleaned out and fed to swine. The yard cattle were then fed with tares until the second crop of clover was fit to cut, and upon this they were kept until sold, ten on the 28th August, and the residue on the 28th September. The statement of the cost and profit is given as follows:

The 48 cattle cost together, for purchase and wintering, £503 02 00

The 10 best of the soiled cattle were sold at £17 15s., and the remainder of the whole number at £14 5s. each, thus yielding,

For the soiled lot of 24, £377 00 00
ditto grazed do 342 00 00

Or 29s 2d. (about $6) per head more upon the soiled than the grazed cattle; although they were all purchased at one price, and separated with most accurate fairness. The food consumed by the 24 soiled cattle was grown upon 12¾ acres, and consisted of 8 acres of clover, 3 do. tares, and 1¾ of Swedish turnips. "Being £125 9s. for the cost of food and profit upon the stock." Mr. Brown expresses his belief, "that the saving per acre by soiling will amount to 50 per cent; or, in other words, that a field of clover and rye grass will feed one half more beasts when cut by the scythe, than when it is depastured." Sir John Sinclair states, that the same number of stock were soiled on 17 acres, which had always previously required 50 acres of pasture. In a trial reported to the board of agriculture, 33 head of cattle were said to have been soiled, from the 20th May to the 1st October, on 17½ acres, on which it is stated it would have required 50 acres to have pastured them. The above facts are abstracted from British Husbandry, Low's Elements, &c. which see.

We have gone into this exposition, from a conviction that soiling may be beneficially introduced here, in finishing cattle, stall-fed in the winter, for the spring and summer market—in feeding working cattle—and as an auxiliary means of increasing the products and profits of the dairy. We have, or may have, pretty ample resources for this mode of management, in the Swedish turnip, the lucern and the clover. The turnips will serve til June, with hay or straw. We speak from experience; for we have thus fed them for the last dozen years. The lucern is fit to begin to cut from the 15th to the 25th May, and clover by the middle of June. The precaution must however be observed, in changing from dry to green food, to use the latter at first sparingly, or to begin by mixing the two kinds.

Stall-fed cattle generally lose at first, on shifting them in spring from the stable to the pasture. Working cattle, after the labor of the day, fill themselves with cut grass more speedily than they can at grazing, and have more time, when fed, to ruminate and rest. And with milch cows, particularly when pastures are short, a bite of cut lucern or clover, at morning and evening, makes an astonishing difference in the product of milk. An acre of good lucern, judiciously fed in this way to a herd of cows, would, we think, increase the profits of the dairy at least $50 in a season. We have had as great a quantity of milk from cows in December, fed with roots, as in June in good pasture.

In conducting the soiling system, it is best to give the food often and in small quantities, as otherwise the cattle will blow upon and reject it; and given in too great abundance it will cloy them, and will be no longer relished. Straw mixed with green food tends to correct any disposition to looseness in the bowels. The remains of the food should be removed to the pig-pen, or elsewhere, immediately after the stock have done with it.

Anti-cattle choaker, is the term applied to a tarred rope, to remove obstructions in the throat of animals, as apples, potatoes, &c. The public are indebted to *Paine Wingate*, a highly respectable farmer of Maine, for the suggestion. He takes a tarred rope an inch in diameter, and six feet long, untwists three or four inches at the end, and leaves a tuft of it loose, in order to make a kind of ball or swab-like end, and this he covers with a piece of linen or canvass, and winds it tightly and smoothly with yarn. With this the obstruction may be forced into the stomach without injury to the beast. It is better than a cart-whip, or an elastic cane with a dosset of tow, which we see recommended in the English books.

The Wintergreen, (Chymophylla corymboso,) which abounds in all our pine woods, although an insignificant humble plant, possesses valuable medical qualities, and affords a proof of the correctness of St. Pierre's remark, that Providence has provided, in every country, not only what is most essential to the sustenance of its animal population, but that which is most essential to its medical wants. It appears by a paper read before the London Medico-Botanic Society, that it has long been held among the Indians of reputation in fever and rheumatism, and is tonic and astringent, but is principally valued as a diuretic. Dr. Somerville used an infusion in dropsy with good effect, and the same has been testified by Dr. Manct and Dr. Barton. The wintergreen is extensively used in domestic hop beer, and is considered a purifier of the blood in spring.

Grand exhibition at Ghent.—On the 10th March there was the most brilliant exhibition of rare and beautiful exotic plants at Ghent, ever recorded, perhaps, in the annals of botany and floriculture. The Flemings, it is known, excel in a taste for floriculture; the aristocracy are mostly amateur florists or pomologists—the commercial gardens are numerous and extensive, and the love of flowers pervades all classes. The show in March was at the inauguration of the Cassino, a splendid hall just completed, at Ghent, for floral exhibitions, 314 feet in length. The judges were 29, and were from Vienna, Paris, London, Brussels, and other principal towns. More than 5,300 plants were arranged in their respective collections, and 320 persons sat down to the dinner, embracing noblemen, gentry and gardeners.

Merino and Saxon Sheep.—Inquiries are frequently made of us from the south, at what price Saxon and Merino sheep can be had. In reply to these queries, we are authorized to state as follows: Mr. Daniel Curtis, of Canaan, Columbia county, offers Saxon and Merino bucks at from five to fifteen dollars, according to age and quality. Mr. H. D. Grove, of Hoosick, Rensselaer county, offers his Saxon bucks at from fifteen to twenty dollars; and our neighbor, C. N. Bement, will charge, for old-fashioned Merino bucks, twenty-five dollars. These prices are exclusive of the charge of transportation. Mr. Curtis has sent us a card containing specimens of the wool of more than sixty individuals of his flock; and Mr. Grove has also sent us many specimens from his superior Saxon flock. These specimens may be examined at the office of the Cultivator.

The Grub Worm, we are advised, is already doing much mischief in the fields of young corn at the south, and even in the wheat fields. We therefore repeat the suggestion, that a handful of unleached ashes scattered upon each hill, or of ashes and gypsum, or of ashes and lime, promises the best preventive of the evil.

The Rye crop in New-Jersey, so far as we were able to judge during a jaunt across the state from Amboy to Camden, will prove almost a total failure. With deference we remark, that the prevailing mode of cultivating this crop there, seems to be a very bad one. Although the country is sandy, it is very flat, and the crops seem to suffer from water reposing upon or near the surface. The fields are generally cultivated with a flat surface, and the rye appears to have been sown with corn, before the harvesting of the corn. This is slovenly farming; and the vegetable matter which covers the field at the corn harvest, is virtually lost. If the land was cultivated in sixteen or twenty feet ridges, in the direction of the slope, the crops would suffer much less from wet and cold, and no more from drought, than they do now. And if the vegetable matters upon the surface in autumn were turned under, they would afford food to the crops, which they apparently very much want. Under drains would prove highly serviceable.

"Every conveyance of real estate within this state, hereafter made, shall be recorded in the office of the clerk of the county where such real estate shall be situated; and every such conveyance not so recorded, shall be void as against any subsequent purchaser in good faith and for valuable consideration, of the same real estate, or any portion thereof, whose conveyance shall be first duly recorded." *See Revised Laws.*

Acknowledgments.—Seeds of the seven years pumpkin, and of a new squash, from W. Wetmore, Ohio; Wilson's long-keeping apple, a very handsome sound fruit, from Robert Speir, Esquire, of Saratoga; three beautiful new apples, from J. A. Thompson, Esq. of Catskill, of which the Beauty of Wilts is the best, also Rohan potatoes; Baden corn, Chilian peas, beans and lentils, from H. L. Ellsworth, Esq. Washington city; files of the Gardner's (London) Gazette, from G. C. Thorburn, of New-York; Prospectus of the American Society for the diffusion of useful knowledge, from G. D. Abbott; a specimen of beautiful corn, from D. Wendell, Esq. of Murfreesboro', Ten ; a set of garden hoes, and a weeding fork, of approved model and make, from T. Collins, of Burlington, N. J. Grape cuttings, forwarded to us by a friend in Arkansas, have not come to hand.

Wanted.—Seeds and bulbs of flowering plants indigenous on the western prairies—particularly of species not growing in the Atlantic states.

CORRESPONDENCE.

DISEASES OF CATTLE.

Mr. J. Buel,—Dear Sir,—As my farm is better adapted for grazing than it is for raising grain, I have, for a number of years past, turned my attention, not unprofitably, to the former; my dairy has consisted of from twenty to twenty-three cows, with a proportion of other stock I succeeded very well until the summer of 1833, at which time a distemper appeared amongst my cattle, which has hitherto baffled all my efforts to get rid of. Having lately become a subscriber for the Cultivator, it occurred to me, that if information was to be obtained from any quarter as to the cause, nature, treatment, &c. of the disease, your valuable columns was the place. In hopes that either yourself, or some one of your numerous correspondents, will be able to point out a better course of treatment than I have yet fallen upon, I shall endeavor to give as plain and short a description of the loathsome malady as I am capable of. I may here state, that some others in this neighborhood, as well as myself, have had the same distemper among their cattle, and with the same result. That my loss has been greater, and that the trouble has continued longer with me than with any other that I know of, is probably owing to my stock being larger, and my continuing to keep the number good, I being loath to give up the business; and selling them, unless for beef, being out of the question. Out of nineteen head that have been seized, three only have recovered, and one of them has since died from what I considered its effects on her constitution.

The first symptom observable, is running at the eyes and nose, at first thin and of a greenish colour, but soon becomes a tough yellow matter. A violent fever soon comes on, accompanied with shivering and cough, the appetite gone, and a general debility takes place, so that the healthiest looking animal, in two or three days, (as the saying is) becomes like two boards. The fæces is not alike in all, some are soon attacked with diarrhaœ, which continues to the last; others continue in the opposite extreme; in some cases there is a continual inclination to urine, which is of a redish colour, as if mixed with blood, others are not much so; if in calf, they invariably cast it at whatever stage of its existence it may be. Three or four days puts an end to those that are most violently seized, but not so with others, who will linger for two or three weeks. The eye, which is sunk and inflamed, becomes coated over with a yellow film, caused from its continual running, and they become perfectly blind. The skin cracks open and peels in large pieces from the mouth, lips, nose and teats; the skin on the back also cracks, from which a yellow watery matter exudes; the nose gets stopped, and a continual gasping for breath is the consequence. If the weather is warm, the fly finds a proper receptacle for her eggs in the animal, and I need not state the consequence. We are glad to kill them to end their misery, and rid ourselves of the loathsome spectacle. On opening them, (which I have had done in one or two instances by a respectable physician,) inflammation had taken place in the intestines generally, and in all cases the gall bladder is greatly enlarged, the liquid in which seems to have discharged into the lungs, at least the parts adjacent are colored as if from that cause. They are alike liable to the disease at any age, and in any season of the year. I have treated them for what is usually termed jaundice or yellows, but no treatise on that trouble that I have met with, describes it exactly as it exists among my cattle. As a preventive, I have had them all bled, and fed them for a length of time, (mixed with their salt and otherwise,) bitter articles, such as soot tea, tar water, aloes, &c My treatment, when sick, has been bleeding, purging, and the various medicines usually recommended for the above named disease; but all to no effect, as you will infer from what I have already stated. If, from the statement I have given, you or any of your intelligent correspondents can give a satisfactory answer to the following questions, you will confer a favor on the public, and especially to the subscriber. 1st. What is the disease? 2d. Has any thing local a tendency to produce it? 3d. If in the affirmative, what things have this tendency? 4th. If not, what are the causes? 5th. Is it infectious?* 6th. What is the most proper treatment? And 7th. What the best way to get rid of it?†

I am, dear sir, yours respectfully,

JAMES SMEALIE.

Princetown, Schenectady co. May 9th, 1837.

When I commenced the above, a favorite cow just began to spring bag, was seized; she was in excellent order, and to all appearance, perfectly healthy; her case has been as violent as any I have had, she living but three days and a half from the time I first observed her sick. I have just opened her, the gall bladder appeared to be at least three times larger than its natural size, and part of its contents had evidently been discharged on the lungs and liver; the lungs were very much swelled and inflamed. She appeared to be choked to death.

If you have met with any thing in your extensive reading relative to this disease, that you think might be of advantage, you will confer a very special favor if you will communicate it by post. I have come to the determination to make what I can out of my stock through the summer, and turn them all to beef in the fall; but I may have need to doctor several of them before that time. A letter addressed to me, directed to the care of Wm. Lyman, Esq. Schenectady, will be forwarded immediately.

---

* Although nineteen head have had this distemper during the time it has lurked among them, never but once were two of them sick at a time.

† We are obliged to defer our answer till the July number.—*Cond.*

Yours, &c. J. S.

COTTON SEED OIL CAKE.

Judge Buel,—Dear Sir,—In noticing the value of the oil obtained from the cotton seed in the May number of the Cultivator, you have incidently referred to the cake obtained from the seed, as valuable food for stock. Last year I obtained a quantity of the cotton seed oil cake from New-Orleans, which cost on delivery at my farm in Dutchess county, about $20 per ton. It was shipped in the beginning of warm weather, and was not perfectly sound when it arrived; but in the state it was, I found it the most valuable food I have ever seen, for nearly all kinds of farm stock. I fed it to two fattening cattle in the summer, which improved their condition considerably; but owing to irregularity in feeding, I had not a very good opportunity of testing its value in their case. During the winter, it was given freely to all my milch cows, and young stock and sheep. From the last of November to the middle of March, four cows fed upon it, at the rate of about four or five quarts a day, made over two hundred pounds of butter. The cows calved in April and May. The sheep were in superior condition all winter, being fed a very small quantity daily. Their lambs came early and found plenty of sustenance, which I attribute mainly to the use of oil cake. To milch cows I would give from four to eight quarts daily. Along the Connecticut river, where it is extensively used, it is considered as food for cows superior to any other. I can certainly say, that the quantity I purchased, three tons, and which lasted till spring, paid for itself by the saving of hay. The butter made by its use and the improved condition of stock is clear profit.

At the south, I am told by an intelligent planter, that they can make but little use of it as food for stock, owing probably, to the heating nature it possesses. An oil establishment at New-York, in Laurens-street, keeps a constant supply of it, selling largely to the milk men and farmers on Long Island. The importation of this acticle in great quantities may serve a very important use in the agriculture of the north One ton is richly worth, according to the opinion of all who have used it, two tons of the best hay. This may enable farmers to winter three times their usual stock, and not only improve the condition of their stock, but add permanent value to their land. If it merely paid for itself in saving hay, the increase of manure, the farmer's philosopher's stone, would be profit enough.

The farmers near New-York pay for it at the oil manufactory about $23 per ton. It can be afforded. however, at a less rate than that, if the demand is great enough to warrant a general importation.

I ought to have observed, that though swine are very fond of it, it is very doubtful whether it is proper food for them. Yours, &c.

Dutchess county, May 8th, 1837. J. B. J.

MORE PROFITABLE TO FEED HAY THAN TO SELL IT.

Dear Sir,—It is very generally believed that, when hay is selling at fifteen or twenty dollars a ton, a farmer cannot afford to feed it to stock; and the consequence is, that in the fall of the year, farmers dispose of their cattle at very low prices, and just at the time when their most important uses should commence. I believe this opinion to be founded upon an error, that may lead to most lamentable consequences. The true basis of all good husbandry, is the preservation and proper application of the greatest possible amount of manure. The farmer who sells his stock in order to dispose of his hay, deviates very widely from this principle. But I believe that a farmer can winter stock, with more profit, than to dispose of his hay, even at $20 per ton; and as assertions are nothing, unless founded upon some experience, allow me to detail a case in point. Let me, in the first place, however, observe, that in the following statement, the source of profit from wintering stock is mostly attributed to manure. Now, some farmers may think I set too high a value upon that substance; but in making a correct estimate of the relative profits of the two methods here spoken of, the real value, as near as may be, must be set upon it. I think that manure is really worth twice as much as I have valued it at, and as this is the only point which admits of difference, I should be pleased to have your own opinion upon it.* The following is the case:

Upon my farm in Dutchess county, we last year wintered five horses, five cows, seven head of young stock, and one yoke of working cattle. The amount of food they consumed, with the highest market value, is as follows:

15 tons hay, at $20 per ton,	$300 00
250 bushels of mangold wurtzel, at 25c.	62 50
75 do. ruta baga, at 37½c.	28 12½
1½ tons cotton seed oil cake, at $20,	30 00
Oat straw,	30 00
	$450 62½
Deduct charges for pressing hay, drawing and commissions on sale,	100 00
	$350 62½

This is more than they really consumed, and the articles are put much above their market value. For instance, the fifteen tons of hay was the remnant of about seventy tons, that was not marketable. We will now see what was realized from feeding it to the stock named above.

Cr. by 220 pounds fresh butter, at 25c.	$55 00
" " milk fed to swine,	15 00
" " 200 ox-cart loads of stable dung, well heaped, at $1.50 per load,	300 00
" " increased growth and value of stock,	25 00
" " one Durham calf fed on milk in the winter,	5 00
	$400 00
To balance,	350 62½
	$49 37½

This statement leaves a balance, in favor of wintering stock, of $49.37½. It may be objected, as I have previously remarked, that I charge too high a price for the manure. This I must leave to the judgment and consciences of farmers, with the single remark, that if any farmer should be guilty of selling from his yard, a large ox-cart load of unfermented manure for twelve shillings, he would be actually robbing himself. Short crops of hay are not to be remedied by dispensing with manure. This system would soon make short crops indeed; the farmer would soon be spared the trouble of either selling or feeding.

There is one other consideration to be noticed in the foregoing statement. If, instead of three of the horses, there had been kept four milch cows, more than $50 would have been added to the profits in feeding. So with the young stock. Besides this, farmers who sell their milch cows in the fall for fifteen or twenty dollars, are compelled to pay thirty or forty dollars in the spring to get them back.

Yours respectfully, J.

Dutchess county, May 12th, 1837.

A DIGEST OF THE PRINCIPLES OF AGRICULTURE PROPOSED.

New-Bedford, Pa. February 24th, 1837.

Dear Sir,—I have thought, that from the great mass of agricultural information now before the public, a digest could be made in a scientific form, reduced to proper heads, and under such arrangements, as to impose on agriculture the form and system of a science. The whole art, or from henceforth, the science of agriculture may, with propriety be comprehended under three general heads, viz: Keep the land rich; keep the land dry; keep the land clean. Under the head of keeping the land rich, is embraced the whole knowledge of preparing, managing and applying manures. Under the head of keeping the land dry, are included the whole art of draining. Under the head of keeping the land clean, are comprehended the entire knowledge of destroying weeds.* Each of these admits of their divisions, and subdivisions. I have merely suggested the above, that you, or some one who has the interest of agriculture at heart, would essay to throw the knowledge, which is now extant, into form and system. The advantage which this would be to agriculture is but imperfectly appreciated at present.

Sir, were your correspondents, (when they advise you of the result of their labors or their experiments,) to be particular in describing their mode of operation, the date of planting, the kind and quality of the soil, and particularly the subsoil, it would greatly assist in giving stability to practice. The term loam is too vague to be used without connection; the particular kind of loam ought to be specified, the term sandy or silicious, clay or agillaceous, ought always to be prefixed, as either of these predominate. Your correspondents ought to be particular in stating, whether the soil is calcareous or not, and if possible, whether in excess or deficient; also the spontaneous vegetable productions which prevail, for these are commonly indicative of the character of the soil. Were close and attentive observation to be thus exercised by all our intelligent farmers, and if these observations were collected and arranged by men of experience and talents in agricultural pursuits, there is no manner of doubt, but agriculture would thus assume the infallible character of science, and could thus be introduced into our schools, and taught with the certainty of demonstration.

The Cultivator has a very respectable patronage; this shews that in every portion of the Union there are men who know how to appreciate the merit of the publication; but there are many, very many, of your subscribers, who see no beauty in these things. Upon the character and recommendation of others they have subscribed, but are too much attached to the old habitual road to deviate a line to the right hand or to the left; the inveteracy of habit, unaccompanied with thought, has doomed them to ignorance in agricultural pursuits, and effectually disqualified them from appreciating the merit of agricultural periodicals. I can venture to affirm,

---

*We fully concur with our correspondent as to the value of manure, when judiciously employed.—*Cond.*

* We like this suggestion, and will endeavor to profit by it.—*Cond.*

their number will daily decrease, amongst the rising generation they shall count but few; for the diffusion of knowledge, in every department of life, is fast diverging to an unknown circumference. The sun of agricultural science has now arisen in the east, already he has attained some altitude, nor shall he cease to ascend until he culminates and bursts with a flood of meridional glory upon an enlightened and happy agricultural people. I am, sir, yours respectfully,

WM. JOHNSON.

EFFECT OF LIME AND SALT ON WHEAT.

On the 17th of October last, I sowed a small lot in wheat; in passing through it a few days since, I was surprised to find that about one-half the field was pretty well set, the other part not having more than one stalk in a foot square, on an average, being all pulled up by the severe frost of the winter, and lying on top of the ground. This, at first, appeared to me unaccountable. I knew I had sowed the same kind of wheat, and within two hours of the same time. It appeared to follow a direct line across the field; on one side, it stood sufficiently thick for a good crop, on the other, not enough for one-fifth of a crop. After a little reflection, I recollected that with the view of taking out the chess or cheat, I had treated one-half the seed in the following manner, viz: I saturated a quantity of water with common salt, in order to increase its specific gravity, so as to cause the cheat to swim on the top; into this solution I threw one-half the seed, and removed the cheat. In order to enable me to sow the wheat immediately, I rolled it in lime, to make it dry; this was the only difference in circumstances that occurred. In order to ascertain whether this treatment had any agency in producing the appearance above described, I followed the direct line formed by the good wheat on one side, and that which was pulled up by the winter on the other, to the fence, where I recollected I had made a mark in a rail with my knife, at the time of sowing, when it appeared, that the line across the field precisely corresponded with the appearance of the wheat, on one side of which the salted and limed wheat was sowed, on the other the dry wheat. Indeed, so distinct was the line of separation, that the most casual observer could not avoid noticing it. A few days since, I took a friend into the field, (after relating the circumstance.) I requested him to start in the middle, and follow the line, and see if he could discover the mark on the fence; he went directly to it. On a more minute examination, there appeared to be more than four times as many stalks standing on equal surfaces of the limed part, than the other; and those on the limed part have a much more vigorous appearance.

The foregoing is merely a statement of the facts, as they appeared at this time. The following questions nuturally arise: 1st. Was it the lime or the salt which produced the above results? 2d. Was it either? If so, 3d. How did they operate so as to prevent the frost from destroying the young wheat, all other circumstances being so near alike?

In answer to the first question, it will require farther experiments to decide, which, alone, exerted the influence, so as to produce the effect described. I believe it is an admitted fact with agriculturists, that both, under certain circumstances, exert a powerful influence on vegetation.

In answer to the second query, I have no hesitation in saying, from the facts above stated, that the salt and lime, either singly or together, produced the difference in the two sides of the field.

In answer to the third query, I will make a few remarks. So far as I observed, the wheat came up on every part of the lot at the same time, about twenty days after it was sowed, (the weather was cold and unfavorable.) When the roots of the wheat on the limed part are examined, they appear longer and more numerous there than on the other part. I have but little doubt, therefore, that the lime and salt exerted an influence on the growth of the roots of the wheat, during the winter, increasing their number and their strength, so as to enable them to resist the severity of the winter, and hold fast to the soil; whilst on the other part, the roots remained comparatively as they were when winter set in, being late sowed, the roots gained but little hold, and not increasing in number nor size, were readily pulled out by the frost. I think it probable, that the same difference will not be observed in early sowing; full time will be given for the roots in both cases to attach the stalk firmly to the ground, so as equally to resist the influence of the frost; therefore, but little difference will be observed.

Whether this view of the subject be correct or not, I leave to farther experiment and to those more conversant in the matter to decide. It has occurred to me, that much of the benefit which is said to be derived from rolling seed wheat in lime,* to destroy the Hessian fly, has arisen from the fact, that the lime enables the young wheat to resist the winter; a much greater number of stalks remaining (as in the field just described) on the limed part, than on that which is not limed. The chances are much increased, (if the flies are not numerous,) that many stalks in the former will escape their ravages, when most of the latter, because of their being less numerous, will be attacked and destroyed.

I have thrown these remarks together hastily, with the view of attracting the attention of others better qualified to examine the subject. If farther experience and observation should go to establish the facts which I have submitted, there is a probability, of that much loss sustained by late sowing, (to avoid the ravages of that destructive insect, the Hessian fly,) may be avoided. If you, or any of your numerous correspondents, have made any similar observations, I would be glad if you would make them public through the columns of your useful paper. You will have observed, that the foregoing facts have not been advanced (as is too often the case,) to establish a favorite preconceived theory, the whole being the result of accident, as I had no other object in view than the removal of the chess or cheat from the wheat. JEFFERSON SHIELDS.

Emmetsburgh, Md. March 23d, 1837.

EXTRACTS.

AGRICULTURAL EDUCATION.

A series of well written numbers upon this subject has been addressed to the farmers of Canada, through a Montreal paper, by William Evans. As we consider this one of the most important subjects to bring before our readers, we make the following extracts from the second number of the series, and commend them to the particular notice of all who wish to fit their sons for usefulness and respectability in life.

TO THE FARMERS OF CANADA.

Agricultural improvement, by the education of those that are engaged in it as a profession.

" What are the advantages that are likely to result, from the useful, practical, and general education of the agricultural class?

" To this question I reply, that an improved system of agricultural management would inevitably be introduced, by which it would be possible to augment the produce and returns obtained from the cultivated land, and stock in these Provinces, to double what they are at present, and in many instances, much more; and I am firmly persuaded, that no material improvement will ever be effected in the agriculture of the Canadas, until farmers do become usefully and generally educated. I have not arrived at these conclusions, without giving those matters consideration. I know too well that farmers, above all other classes of men, have an antipathy to change, and object to innovation, and that there is no means of removing their prejudices, but by education, which would enable them to examine thoroughly the changes that would be recommended to their notice, and look steadily at all the bearings of questions that would affect their interests. They would then, from conviction of their own minds, adopt with alacrity all measures that would be likely to augment the means of happiness of themselves, and their families. It is then that the natural fertility of this fine country would be taken full advantage of, the fields would be well cultivated, and yield abundant crops: the flocks and herds would be judiciously chosen, well managed and fed; good and ample means of internal communication would be provided. All matters in any way connected with agriculture, would clearly exhibit the industry, the skill, and intelligence of those engaged in husbandry, and raise the yeomanry of these Provinces to that high station they are entitled to occupy in this community. If education can produce these results, and no doubt it would, how highly should it be desired and prized by those engaged in agriculture. It is true, that agriculture may be practised by *imitation*, without any knowledge of its theory; but in this case it will generally remain stationary. The mere routine practitioner cannot advance beyond the limits of his own particular experience, and can never derive instruction from such accidents as are favorable to his object, nor guard against the recurrence of such as are unfavorable. He can have no recourse for unforeseen events, but ordinary expedients; while the educated man of science resorts to general principles, refers events to their true causes, and adopts his measures to meet each case."

" I expect to be able to establish the fact clearly, that a *judicious* education will diminish crime, and increase the means of human happiness; and if I am able to do this, it is a matter of the first importance in every country, that the inhabitants be *usefully* and *generally* educated; and *more particularly* the agricultural class, who, I maintain, will receive more certain benefit from an education that is suitable for them, and incur less risk of injury to their habits and usefulness, from this education, than any other numerous class of this community. There is much more danger that some of the educated inhabitants of cities and towns would become idle and useless members of society, than that properly instructed agriculturists should become so. But in any situation, the education that will not be productive of good to the individual, must be defective. 'The most enlightened are the most reasonable—the most reasonable feel more than others the real interests and motives they have to be virtuous. Without the study of nature, man can never know the relation he bears, nor the duties he owes to himself and others—deprived of this knowledge, he can have neither firm principles nor true happiness. The most enlightened, are the most interested in being the best men'—however lamentable it may be, that we do not find them the best in every case. But we shall, among the uneducated class, discover a much greater lack of virtuous principle and true enjoyment, in proportion, than among the properly educated.

---

* From frequent experiments and minute observations, I am entirely satisfied, that rolling seed wheat in lime does not exert the least influence, in preventing the ravages of the fly, unless as here stated; particular attention to the habits of that insect, for upwards of seven years, has convinced me that it never does, (as is generally supposed,) deposite its ova or egg in, or on, the grain of wheat, but invariably on the stalk, through the blade or leaf, and near the first joint. The first deposite is made just after it comes up, the second about the 25th of April, consequently no agent applied to the seed, with the view of destroying the ova or egg, can be of the least service, except as here stated.

"Mind was given to man for cultivation, and the means of cultivation is by education and reading. Like the soil of our mother earth, the more *judiciously* it is cultivated, the more abundant good fruits will be produced for the benefit of the individual and of society. There cannot be a more just comparison made, than of an uneducated man, to an ill-cultivated farm; and a *usefully* educated man, to a judiciously cultivated farm. In the first, the natural product, whether good or bad, is allowed to keep possession to a certain extent, both in the mind and in the soil, and the general product of what is useful must necessarily be scanty. In the last, on the contrary, no plants in the field, or ideas in the mind, are suffered to remain or take root, but such as are useful to man, and these are carefully cultivated, and the produce of *good fruits* are most abundant.

"If these results do not always follow, it will be from the intervention of accidental circumstances, and will not prove the general principles to be incorrect. There may be many defects in the mode and extent of education."

"It is a great mistake to compare the agricultural classes in British America generally to what are termed the *peasantry* of other countries, who are mostly persons that have little or no property, more than what they receive for their daily labor, or those who occupy a few acres of land as tenants, paying a high rent for it. On the contrary, the rural population in these Provinces are *proprietors* of ample farms, stock, implements of husbandry, &c. &c. There can be no question of the necessity that exists, that persons circumstanced as the latter class, should receive a suitable education. They cannot exercise their profession to due advantage without being thus qualified; and the loss to this country that is occasioned by the absence of a judicious system of agriculture, and a consequent scanty produce, is enormous.

"In the British Isles, within the last fifty years, the produce obtained from agriculture has been greatly increased, and this is to be attributed solely to the improved cultivation and management of soil and stock introduced by educated men. The state of property in those countries will insure the advance of improvement in agriculture, though it should not be through the suggestion of the occupying rent-paying farmer. It will be the interest of the great landed proprietors to proceed with experiments on land and stock, so as to make them as profitable as possible, in order to maintain the rent of lands, &c. on which their annual income chiefly depends. It is not so in British America, the farmers being the *proprietors* of the soil they occupy, they must rely upon themselves for its judicious cultivation. It is for them to judge whether they are competent to do this without receiving a useful and practical education."

"What may be considered by some to be the most improved system of agricultural management cannot be introduced in British America, unless it may be made profitable. I confess I cannot look upon any system of agricultural management in tillage or stock, as entitled to the term "*improved*," unless it produce *actual profit* to the farmer. Expenditure of capital or labor in any way, that will not give proportionate returns, must be injurious to the community, as well as to the individual who expends it. By *practically* and *usefully* educating the farmer, he will be able to determine for *himself* the course he ought to adopt, in the conduct of every part of his business. In vain was all that has been written and published for the improvement of husbandry, if farmers cannot and will not read. The manners and customs of other countries are unknown to him The wonders and beauties which abound in the world, are of little consequence to the man who cannot make himself acquainted with descriptions that are given of them, and that would place them as if viewed in a glass before him. The usefulness and enjoyment of those so circumstanced, must, indeed be confined within narrow bounds. It is those who have the good fortune to be educated, that will know that education is an essential element of the usefulness of man, to those around him, to the world, and to his own enjoyment."

THE CUT-WORM.

Joseph E. Muse, of Cambridge, Md. has published in the Farmers' Register, some strictures upon two communications which have appeared in the Cultivator, in regard to the character of the cut-worm. He endeavors to show, that its character has been mistaken, by both of our correspondents, as well as by the late Judge Peters, and concludes his communication with the following statement, which we insert for the entomological information which it contains.

"To come at the fact, I carried into the corn-field a large transparent bottle, which I half-filled with earth—upon this earth I deposited a dozen of the worms, and gave them corn plants to feed upon. In a few weeks they disappeared. I searched the earth and found them 'chrysalids' enveloped in balls of earth. A considerable time after I again examined them, and found several of them matured into the imago, or *parent* bug, and extricated from their *envelops;* others in the state of a soft 'pupa,' with limbs more or less distinctly formed, in various stages of progression, and exhibiting unequivocal proofs of their origin, and of the impossibility of mistake or deception. These destructive animals belong to the order 'coleoptera' of Linn. having crustaceous elytra, or wing cases, which shut together and form a longitudinal suture down the back. They are about one-quarter of an inch long, generally, and of a shining jet black colour, very quick and active in their movements; in fact, the same identical bugs that are seen in vast numbers under wheat stacks, and in wheat yards. The brief history of this insect is, that its larva having fed upon the young corn, or other delicate plants, descends into the earth about the depth of four inches, where it assumes its state of '*chrysalis*,' in which it continues till about the first of July, and no doubt, a shorter or longer period, as the weather may be more or less favorable—when it becomes transformed into the imago or parent, which in autumn deposites its eggs in the field, to undergo a similar series of transitions, which is effected by the heat of the ensuing season.

"The obvious *preventive* is *fall* or *winter ploughing* at such a depth as will turn up, and expose to the frost, the eggs, whereby they must perish."

The above *preventive* was not offered as original, it had before been practised, perhaps by many, and its effects had fallen short of their hopes; first, by the imperfect method of too *shallow* a *furrow*, and too *wide* a *slice*, whereby the eggs were not sufficiently exposed. Secondly, because the eggs of all insects are, unfortunately, so tenacious of the principle of *vitality*, as to resist a degree of cold incredible to those who have not witnessed the fact: yet having long practised the proposed preventive, I can say in the fullest truth, that when the work was well executed, and a very *mild winter* did not ensue, I have received a full equivalent for the labor.

Finally, I must apologize for subjoining my name contrary to the general custom, "I perceive," of your correspondents. May I presume to ask what motive can occasion this custom? Certainly an *anonymous* statements of *facts*, or even of *opinions*, carries with it less confidence than one which offers the *responsibility* of a *name;* and with diminished confidence, the purpose is diminished in effect. The name freely tendered, "of a witness to facts," is a considerable assurance of, at least, a *belief* of their truth; he may be deceived, but it is justly said '*humanum est errare;*' and ordinary liberality will not impute to him a wanton misrepresentation of his impression of facts. Modesty is commendable; but in this custom, there is rather something of the "*mauvaise honte.*" As well may a public speaker, or a witness in court, conceal his identity behind a curtain. The *cause*, and the *effect* would seem to be the same.

[*From Chaptal's Chemistry applied to Agriculture.*]

IMPROVEMENT OF THE SOIL.

ARGILLACEOUS, HOW IMPROVED.

These defects, more marked in argillaceous soils than in others, require to be amended; every thing which will tend to soften the earth, to render it more light and porous, and to facilitate the passage of water through it, is perfectly adapted to this kind of soil: thus the mixture of earths, and of calcareous sands, broken shells, chalks, and lean marl; deep and frequent ploughing; the turning in of green crops; the use of hot manures, such as the dung, fresh from the barn-yard, of sheep and horses, that of pigeons and fowls, *poudrette*, and the salts, are so many means which may be made to concur in the improvement of argillaceous soils.

I have had opportunities of seeing many soils possessing the same faults as the argillaceous, but not owing to the excess of that earth; for by mixing a portion of the soils in water, I satisfied myself that there was not contained in them any coarse sand; so that the whole was formed by a union of particles so minutely divided as to present no consistency in the mass; but forming a paste with water, and cracking when that liquid was evaporated. The only difference between the argillaceous soils and these is, that the latter when dried do not possess the hardness of the former, but on the contrary fall, under the pressure of the hand, into a nearly impalpable powder. The state of these soils is owing to their having been exhausted by long cultivation; some of the kind which I have owned, I have been able to restore to fertility by applying a portion of sandy marl containing 42-100 of calcareous sand.

CALCAREOUS, HOW IMPROVED.

Calcareous soils possess properties entirely opposite to those of the argillaceous soils; the rains filtrate easily through them, and they throw off moisture readily by evaporation; the air can penetrate them to deposit amongst their particles the moisture with which it is charged: and this, especially in hot climates, conduces greatly to their fertility. The tillage of these soils is always easy; and as they are light and porous, provided they have sufficient depth, roots spread in them easily. Though, from their character, these soils do not require so much amendment as those that are argillaceous, they may still be improved; especially by giving to them the power of retaining water for a longer time, that they may thus be better able to supply the wants of plants: for this purpose, it is sufficient to add to them some fat marl, or for want of that, calcined clay. These soils, being naturally warm, require not the fresh dung of neat cattle; the unctuous manures are best adapted to them.

Sand incorporated with finely divided calcareous earth, forms an excellent means of amendment, especially if it be combined with clay or fat marl. I have likewise seen the rich mud drawn from rivers, used with great success in improving calcareous soils.

There is a great resemblance in many respects between sandy and calcareous soils: both are formed, generally, by the alluvion of rivers; both of them are nearly barren when they contain no other principles; and both of them form the base of very good soils, if they are suitably amended.

ALLUVIAL SOILS, HOW PRESERVED AND ENRICHED.

When these soils are formed by the inundations of rivers, or by streams that have taken new channels, they are for some time destitute of fertility; but the successive swellings of the rivers deposite a rich mud, which becomes at length incorporated with the first layer; and when the whole is well united, an excellent soil is formed. This mud is very fertilizing, from its containing the remains of all those animal and vegetable substances, which muddy waters carry with them in their overflowings. When these soils are left to themselves, we see plants springing upon them spontaneously, from the seeds deposited by the waters which conveyed them there.

Soils of this kind rarely require manuring: successive inundations constantly renew their fertility: their level is raised by the accumulation of deposites, till at length they are not subject to being overflowed, excepting when the rivers rise unusually high; and in those cases the large pebples, which never float upon the surface of water, cannot be deposited upon them. These lands, so valuable for agriculture, do not offer much resistance to the rapid current of great inundations, which often carry them off; nor to the masses of ice, which at the breaking up of the frosts gully and furrow them. I believe I ought here to devote a few lines to pointing out some methods for preserving these valuable lands from such accidents; it is of more consequence to preserve property than to improve it.

In order to prevent the evils of which I have just spoken, it is customary to surround lands of this kind with plantations of trees; but trees of a large size cannot take root firmly in a sandy and easily disturbed soil. The winds are generally very violent in those valleys through which large rivers flow; and these, by the violent motion which they give to the branches, twisting them in every direction, loosen the roots; and the earth being continually disturbed, the water penetrates in, and softens it so that when an overflow of the river happens, the breaches thus made in the soil lessen its powers of resistance to the flood.

If we observe carefully the action of currents upon the great trees surrounding lands situated upon the banks of a stream or river, or upon an island lying in the course of one, we shall be convinced, that, so far from preserving, they facilitate the destruction of property; for as the trunks oppose an invincible resistance to the force of the current, it is divided, and, encircling them, it meets again, having formed a complete trench in the soil. Thus though large trees may be useful for turning aside masses of ice, and preventing the land from being much injured by them; yet instead of preserving it from the ravages of a rapid current, they become powerful auxiliaries to its destructive action.

Flexible shrubs are undoubtedly preferable to large trees; their roots bind the soil; their branches lie upon the surface of the earth, and preserve it from injury during floods; but these shrubs do not present any resistance to the ice when the rivers are breaking up; they cannot turn aside the masses of it, and force them to remain in the bed of the river, that they may not furrow the meadow or field. It is necessary then to unite the resistance offered by trees with that of flexible shrubs: in order to do this, it is necessary to plant willows or poplars on the extremity of the banks, at the distance of seven or eight feet apart; the heads of these may be cut off some feet above the height to which the highest floods ever reach: the water willows or osiers may be planted all along upon the shelf or slope of the land, and from twenty-five to thirty feet inward. In a few years there will be nothing to fear from floods or ice upon land defended in this way; and a considerable revenue will arise from the pruning of the trees, and the clippings of the osiers.

After having placed the land out of danger from inundations, the neighborbood of a river opens sources of profit that are very simple, and may be taken advantage of at a slight expense. I have heretofore remarked, that the mud of rivers is of great use as an amender of soils, and that when employed upon alluvial lands it supersedes the necessity of applying to them other manures; it is then advisable, in overflowings, to retain that mud, and that only, which possesses the greatest power of fertilization.

When the overflow of a stream commences by inundating that portion of land which lies highest up the current, it spreads with great rapidity over the whole extent of it, furrowing its surface, and carrying beyond it all the most finely divided mud with which it is loaded: often up-rooting crops and washing away the manures which have been deposited during former overflowings; and thus impoverishing instead of enriching the soil. But when the rise of water begins down the current, and the whole tract of land is slowly submerged, till, even to the head, it is under water, the soil receives and retains all the richest and most finely divided mud, as well as the remains of animal and vegetable substances which the stream has in its downward course washed off from other tracts of country, without any injury being sustained either by the harvest or the land. In order to give the desired direction to the current, it is only necessary to raise the head of the land, or that part which lies up the stream, and to plant the bank with osiers.

By these means, I have improved and tripled the value of certain islands belonging to me in the river Loire. These islands, which formerly produced but little, and were constantly receiving injury from the swellings of the river, are now the most productive portions of my estate, for the cultivation of grains and beet roots.

SILICEOUS, HOW IMPROVED.

When sandy or siliceous soils are situated at a distance from a river, or are by the height of the banks placed beyond the reach of an overflow, it is necessary to ameliorate them by art; and this must be done by the addition of fat marl, clay, dung, &c. The amendment must be varied according to the nature and fineness of the sand; calcareous sands retain moisture better than siliceous sands.

I have seen some soils formed of beds of large pebbles, which without the appearance of mould upon the surface, produced very good crops; the layer of pebbles, which was second from the surface, contained earth enough to enable the plants to take root and flourish.

Soils of this kind furnish excellent pasture for sheep, as may be observed on the ancient and immense alluvions of the Durance and the Rhone. The herbage upon these is excellent, and suffers less from drought than elsewhere; being protected from the ill effects of the scorching rays of the sun by the pebbles lying above its roots.

Rozier made the experiment of covering a part of the soil of his vineyards with pebbles, and found it attended with good effects, especially as it regarded the quantity of wine obtained. One of my friends owned in Paris, near the barrier d'Enfer, an enclosure, of which the soil was so dry and poor, that notwithstanding all the pains he bestowed upon it, he could never make any fruit-trees thrive there: in order to amend the soil, he covered it with a layer of good earth, which he mixed with the dry sand of the spot; this give it some degree of fertility, but the heat dried his plantations so much, that he could only preserve them by frequent and very expensive waterings: he at length concluded to cover the surface of the ground with a layer of pebbles, and from that time the trees prospered.

BURNING OF SOILS, WHEN BENEFICIAL, AND WHEN HURTFUL.

In some countries, recourse is had to fire as an amender of the soil; this process, called burning, is strongly recommended by some practical farmers, and highly disapproved of by others: both sides rely on the test of their own experience; and both are so sincere in their opinions, that it would be useless to contest the truth of their observations. I can only agree with each of these contradictory opinions, and at the same time make known the cases to which burning is applicable, and those to which it is unsuited, in order to enlighten the agriculturist as to the effect of the operation: he can afterwards make for himself just and rational applications of the theory.

In the process of burning, a layer of from two to four inches in thickness, is removed from the soil in clods: little heaps of combustibles are formed with the broom, thistles, fern, and shrubs that grow upon the spot: these are covered with the clods, and at the end of some days are set on fire; the combustion of them lasts a longer or shorter time. When the the whole has become cool, the heaps of ashes are spread over the surface, and thus mixed with the soil.

By this operation the constituent parts of a soil are divided, and rendered less compact; the disposition which a clayey ground has to absorb a great quantity of water, is corrected, and this soil rendered less cohesive and pasty; the inactive vegetable matter contained in it, is converted into manure: the oxidation of its iron is carried to its maximum; and insects and the seeds of injurious plants are destroyed. Hence we perceive that burning belongs to moist, compact soils; it is attended with good effects when the bed of earth is too cohesive, or when it presents veins of blackish oxide of iron: it is suited to nearly all cold and compact lands.

Burning, especially if it be judiciously conducted, completely changes the nature of a soil, and corrects the greater part of its imperfections. I have by this means given to agriculture 120 acres of land reputed sterile, formed almost entirely of a ferruginous and very compact clay: the burning extended to the depth of four inches. For twelve years this land, though not very productive, has afforded me good returns. Its former sterility had procured it the name of the *Jews' heath.*

Burning is hurtful to calcareous and light lands; to soils of which the composition is perfect; and to fertile lands, rich in decomposed animal and vegetable substances.

It is useless to soils purely siliceous, for these can receive no modification from fire.

In some countries it is customary to burn the stubble upon the field; this method, which is only an imperfect mode of burning, is productive of good in two ways; in the first place, it purifies the soil from insects, and from the seeds of noxious plants; and in the second place, it forms a thin layer of carbon, which by its extreme division is capable of being easily absorbed by plants. I believe that even the heat occasioned by the combustion of the stubble and herbs covering the soil, may produce salutary changes in the combinations of the constituent parts.

The results which I obtained from mixing calcined clay with the sand constituting the soil upon a portion of the plains of Sablons, near Paris, has led me to think, that whenever lands of this nature are cultivated, it may be useful to amend them by the same process; in order to do this, clay may be formed into balls by moistening it with water enough to reduce it to a paste; these balls, after having been calcined in a lime kiln, or the oven of a pottery, may be pounded, and the fragments mixed with the soil. Calcareous, siliceous, and sandy soils may be in this way much improved.

OFFICES OF WATER.

Of all the agents which may be employed as amendments, there is none of which the action is more powerful than that of water: not only does it contribute to the nourishment of the plant by its decomposition, which deposites in the vessels its elementary principles; but it acts still farther by promoting the fermentation of manures; and by conveying into the vegetable organs the juices and salts. Independently of these properties, water dilutes the sap, which has become thickened in the body of the plant, and facilitates its circulation; and likewise furnishes abundantly the means of transpiration. The soil is also softened by water, and thus rendered more permeable by the roots, and by atmospheric air which supplies them with the moisture it contains.

All the excess of water absorbed by plants, is thrown off by transpiration; and this transpiration is always more or less abundant in proportion to the quantity imbibed.

IRRIGATION.

The custom of inundating meadows during winter, preserves them from the effects of hard frosts. Davy ascertained the temperature beneath the bed of ice covering a meadow, and above it: beneath the ice his thermometer stood at 43°; above the ice at 29°. Every one must have observed, that when the surface of a meadow is only partially covered by water during the winter, the herbage upon that part which is left dry, is withered and nearly dead, whilst the rest retains its green hue, and continues to grow.

The character of water used for irrigation, is a thing of some consequence; that of a living stream is the best, especially if it have, by a long course, become impregnated with a good quantity of atmospheric air.

Though water is the most active agent in vegetation, it is nevertheless necessary to apply it with reserve and caution: the worst effects are produced by irrigating land so often as to keep the soil constantly in the state of a liquid paste. The first evil arising from such a course is that of increasing the size of the plants to the injury of all their other qualities; for in such a case the fibres of plants become loose; the texture soft and watery; the flowers are inodorous, and the fruits without firmness, taste, or perfume. The second is, that all useful plants which do not require much water, give place to rushes and flags which change and ruin the soil: in this case the same evil is produced which we seek to destroy in wet lands by the use of soot, gravel, ashes, and other absorbing and saline bodies.

Frequent irrigations are not injurious to poor, light, sandy, or calcareous soils, which have much depth; but they are injurious to rich, compact, argillaceous soils, for in such the noxious plants of which I have just spoken, readily establish themselves.

To ascertain the most favorable times for irrigation, it is necessary to consult the state of the soil, and of the plants: when the earth is deprived of moisture to such a depth that the plants languish, and begin to lose their leaves, the favorable moment has arrived for watering them. If allowed to remain in this state too long, they cease to grow, and hasten to terminate their vegetation by the production of fruits, and flowers; but these are always feeble, poor, and incomplete, when produced under such circumstances.

FALLOWING.

The custom of allowing lands to lie fallow after having produced several harvests, has descended from the remotest antiquity, and is still followed in the greatest part of Europe. It has been thought necessary, that land after having been exhausted by two or three successive crops should be allowed to rest, or to remain in fallow during one or two years, in order that it might have time to recover its strength, or productive virtue. The necessity for rest, imposed by nature upon all animals after continued action, undoubtedly gave rise to this practice; and though the supposed analogy between living bodies, and those that are not so, has no rational foundation, yet it has confirmed the custom of fallowing which arose from it.

However, I am far from believing that this was the only cause for the adoption of the method of which I am speaking; I believe that it may be attributed to the want of hands for performing the labor of constant cultivation; or to the impossibility of nourishing a sufficient number of animals to furnish the necessary manures.

The extent to which the cultivation of lands should be carried, ought always to be in proportion to the population to be fed by its products. It is to be presumed, that when the globe had fewer inhabitants, the settlements were made in those spots where the soil was most fertile, and that when these were exhausted, they removed elsewhere; but when property came to be divided and marked out, each cultivator confined his labors to such a portion of land as would supply his wants; so that when it was sufficient for him to cultivate one-quarter, or one-third of his territory, he allowed the rest to remain untilled.

Fallowing has, according to this view of the subject, arisen from necessity. We know with certainty that the crops in gardens surrounding dwellings may be multiplied and continued indefinitely, by means of tilling and manuring; but the necessity for this is not felt, as long as the produce is sufficient for consumption, and when the expense attending the means of procuring an increase beyond that, would be so much clear loss.

In proportion as population has increased, lands have been cleared up, and cultivation extended and improved; so that production has always kept pace with consumption. As the wants of society permit fallowing less at this time than formerly, it has begun to disappear, especially where those wants are most pressing; and more particularly, when there is an assured prospect of an advantageous market for agricultural productions.

Fallowing was necessary as long as grains only, all of which exhaust the soil, were cultivated; during the intervals of tilling the fields, a variety of herbs grew in them, which afforded food for animals, and the roots of which, when buried in the soil by the plough, furnished a great part of the necessary manure. But at this day, when we have succeeded in establishing the cultivation of a great variety of roots and artificial grasses, the system of fallowing can be no longer supported by the shadow of a good reason.

The scarcity of dung occasioned by the limited number of cattle that could be maintained upon a farm, caused the custom of fallowing to be continued; but the ease with which fodder may be cultivated furnishes the means of supporting an increased number of animals; these in their turn supply manure and labor; and the farmer is no longer under the necessity of allowing his lands to lie fallow.

ARTIFICIAL GRASS LANDS THE BASIS OF GOOD HUSBANDRY.

Artificial grass lands ought now to be considered as forming the basis of agriculture; these furnish fodder, the fodder supports cattle, and the cattle furnish manure, labor, and all the means necessary to a thorough system of cultivation.

The suppression of the practice of fallowing is then equally serviceable to the cultivator, who increases his productions without proportionally increasing his expenses, and so society, which derives from the same extent of soil a much greater quantity of food, and additional resources for supplying the work-shops of the manufacturer.

ROTATION OF CROPS.

A great advantage has arisen from the system of a rotation of crops, which has succeeded that of fallowing. By skilfully arranging a succession of crops of grain, artificial fodder, leguminous plants, roots, &c. the earth is enriched, instead of being impoverished; the ground is cleansed from weeds, and more abundant crops are obtained at a less expense. During those years when certain fodders, such as clover, sainfoin, and trefoil, require no other care than that of harvesting them, the farmer can bestow all his attention, manures, and the labor of his cattle, upon such other portions of his farm as may need amelioration; so that, instead of having one-third of his land lying as an unproductive fallow, it may be covered with herbage affording the finest food for cattle. The soil will be growing richer, instead of poorer, and may be prepared for raising grain, without the addition of any manure.

A BAD PRACTICE COMMENTED ON.

What has contributed the most towards confining French agriculture to that state of mediocrity, from which neither the examples nor the writings of many enlightened theoretical farmers have been able to raise it, is the passion for cultivating too large an extent of land, with limited powers as to its arrangement. Where all the land is sown without any portion of it being properly prepared, the ground is exhausted instead of being improved by cultivation. The farmer, who takes land upon lease, has no interest in endeavoring to make it better, because the shortness of the lease does not permit him to enjoy the fruit of his labor; he is forced to reap from the land all it will produce.

Instead of including in his plans of cultivation a space of ground disproportioned to the means which are at his disposal, the intelligent farmer will at first occupy himself only with such a portion of his land as will be sufficient for his cattle, his manures, and his improvements; when this has been brought into a good state of cultivation, and a regular succession of crops established upon it, he can carry his amendments over successive portions, till, in a few years, the whole soil may be brought to yield every thing which it is capable of producing. But it is only by long leases, that a farmer can be enabled to pursue a method so wise and so secure; and long leases would be in all respects as much for the interest of the proprietor as of the farmer.

As the estate which I own is very extensive, I have not hesitated to set apart from my regular rotation of crops, about two hundred and fifty acres of land of middling quality, which had every year been manured equally with my best lands, but which had yielded but poor returns. This great extent of land is now laid down to grass, and serves as a pasture for my cows, oxen, and sheep; each year I break up one-fifth part of it, and sow it with oats, rye, or barley, and the following year, re-establish it as a grass land. I am convinced that this land would never have repaid me for the expense attendant upon raising from it successive crops of grain, roots, and legumes.

OUTLINE OF THE FIRST PRINCIPLES OF HORTICULTURE.

BY JOHN LINDLEY, F. R. S., &c.

Preface.

It has long been thought by intelligent men that it would tend essentially to the advancement of horticulture, if the physiological principles upon which its operations depend for their success, were reduced to a series of simple laws that could be readily borne in mind by those who might not be willing to occupy themselves with the study, in detail, of the complicated phenomena of vegetable life.

The importance of these laws is so great, that there is not a single practice of the gardener, the farmer, or the forrester, the reason of which, if it relates to the vegetable kingdom, can be understood without a knowledge of them.

It has happened, indeed, that many very interesting facts in horticulture, agriculture, and arboriculture, have been discovered fortuitously; and that improvements in them still continue to be occasionally the result of accident; but it cannot be doubted that these discoveries or improvements would have been long anticipated, had the exact nature of the laws from which they necessarily result, been earlier understood.

There can, moreover, be but little mental interest in watching the success of operations of which the reasons are unknown, compared with that which must be felt when all the phenomena attendant upon practice can be foreseen, their results anticipated, or the causes of failure exactly appreciated.

It must also be manifest, that however skilful any person may become by mere force of habit, and by following certain prescribed rules which experience has, or seems to have, sanctioned; yet that much more success might be expected, if he acted upon certain fixed principles, the truth of which has been well ascertained, instead of following empirical prescriptions, the reason of which he cannot understand.

It is not, however, to be understood from this last observation, that rules of cultivation are to be neglected because they cannot be physiologically explained. On the contrary, the mere fact of a given mode of culture having been followed for a length of time by persons deeply interested in the success of their operations, and of much experience, ought to give it very great authority; for it is well known that there are many important facts, the reason of which is either extremely obscure, or altogether unintelligible. This may be owing either to the defective state of our knowledge of the exact nature of many of the phenomena of life, or to the great difficulty of appreciating every circumstance connected with the fact in question, or to constitutional peculiarities in particular species, which, like animal idiosyncrasy, form exceptions to the ordinary laws of nature and baffle all philosophy.

It is in the writings of vegetable physiologists that is to be found what is known of the relation of botany to the cultivation of plants; but it is always so mixed up with other matter, that an ordinary reader is unable to tell what bears upon horticulture, and what upon other subjects.

I am not aware that there is at present, in any language, a work exclusively designed to separate that part of vegetable physiology, which relates to the science of cultivation, from what appertains to pure botany, or to other subjects; nor can I learn that such an undertaking is in contemplation.

I am, therefore, induced to lay the following little work before the public; first, by a persuasion that it is better that the attempt should be made imperfectly, than not made at all; and, secondly, by the very favorable reception that has been given to a few hasty ideas upon this subject which I ventured to sketch out for a work[*] published some months ago.

The following propositions are prepared upon the same plan as those of an elementary work upon Botany,[†] originally drawn up for the use of the Botanical class in the University of London.

A similar object has here also been kept in view. My intention has not been to write a work on the philosophy of horticulture; but simply to point out in the briefest manner consistent with clearness, what the fundamental principles of that philosophy have been ascertained to be.

The application of these principles has been necessarily, in all cases, very concise; but there will be no disadvantage if the work acts as an exercise of the reasoning powers, as well as a guide to practice.

It may, perhaps, be thought that several points have been omitted, which it would have been desirable to introduce, such as the influence upon vegetation of electricity, manures, pruning, training, and the various modes of grafting.

But it is possible that a little consideration may show that these subjects do not strictly come within the scope of the following pages.

In the first place, a distinction must be drawn between the *Art* and the *Science* of horticulture; the former teaches the manner, the latter the reasons of cultivation; and it is to the latter only that these propositions apply. Secondly, the plan of this sketch excludes every thing that is merely speculative, or that is incapable of being reduced within certain fixed principles.

Electricity is a power of which we know almost nothing certain with reference to vegetation; if many things have been written about it, it must be admitted, at least, that very little has been proved.

The same may be said of manures: the theory of their action is explained at paragraphs 19, 262, and 266.

Pruning and training are a part of the *Art* of cultivation, dependent upon a great variety of physiological laws, the brief explanation of which is the object of this work. A few hints upon the subject will, however, be found in chapters III. IV. VI. and VIII.

The various modes of grafting are also a part of the *art* of horticulture; and are deduced from laws explained in the XIVth chapter.

To conclude; the reader should above all things bear in mind that he ought not to form his opinion upon any point from the mere consideration of one or two isolated propositions, but of the whole of the phenomena which it is the object of the following pages to explain. For he will find that the vital actions of plants are so dependent upon each other, and of so complicated a nature, that, while the whole can be only understood by a study of the parts, neither can any of the parts be exactly understood, without a knowledge of the whole.

I. GENERAL NATURE OF PLANTS.

1. Horticulture is the application of the arts of cultivation, multiplication, and domestication to the vegetable kingdom. Agriculture and Arboriculture are branches of Horticulture.

2. The vegetable kingdom is composed of living beings, destitute of sensation, with no power of moving spontaneously from place to place, and called plants.

3. Plants are organized bodies, consisting of masses of tissue that is permeable by fluids or gaseous matter.

4. Vegetable tissue consists either of minute bladders, or tubes adhering by their contiguous surfaces, and leaving intermediate passages where they do not touch.

5. Tissue is called *cellular* when it is composed of minute bladders, which either approach the figure of a sphere, or are obviously some modification of it, supposed to be caused by extension or lateral compression.

6. When newly formed it is in a very lax state, and possesses great powers of absorption; probably in consequence of the excessive permeability of its membrane and the imperfect cohesion of its cells.

7. Cellular tissue, otherwise called parenchyma, constitutes the soft and brittle parts of plants; such as pith, pulp, the spaces between the veins of leaves, the principal part of the petals; and the like.

8. Succulent plants are such as have an excessive development of cellular tissue.

9. It may be considered the most essential kind of tissue, because, while no plants exist without it, many are composed of nothing else.

10. Tissue is called *woody fibre* when it is composed of slender tubes, which are conical and closed at each end, and placed side by side.

11. Woody fibre is what causes stiffness and tenacity in certain parts of plants; hence it is found in the veins of leaves, and in bark, and it constitutes the principal part of the wood.

12. *Vascular tissue* is that in which either an elastic tough thread is generated spirally within a tube that is closed and conical at each end; or rows of cylindrical cellules, placed end to end, finally become continuous tubes by the loss of their ends.

13. The most remarkable form of vascular tissue is the *spiral vessel*, which has the power of unrolling with elasticity when stretched

14. Other kinds of vascular tissue are incapable of unrolling, but break when stretched

15. Spiral vessels are not found in the wood or bark, and rarely in the roots of plants.

16. Vascular tissue of other kinds is confined to the root, stem, veins of leaves, petals, and other parts composed of leaves. It is not found in bark.

17. The common office of the tissue is to convey fluid or air, and to act as the receptacle of secretions.

18. Cellular tissue conveys fluids in all directions, absorbs with great rapidity, is the first cause of the adhesions that take place between contiguous parts, and is the principal receptable of secreted matter.

19. Adhesion will take place at all times during the growing season, when the cellular tissue of two different parts, or of two different plants,

---

[*] Guide to the Orchard and Kitchen Garden, by George Lindley, C. M. H. S. 8vo. 1831.

[†] Outline of the First Principles of Botany. 18mo. 2d Edition. London, 1831.

is kept for some time in contact; but as none but tissues of nearly the same nature will adhere, grafting and budding, which are caused by the adhesion of contiguous parts, can only take place either between different varieties of the same species, or between nearly related species; and even then only when the correspondent parts of the scion or bud, and the stock, are placed in contact.

20. Woody fibre conveys fluid in the direction of its length, gives stiffness and flexibility to the general system, and acts as a protection to spiral and other delicate vessels.

21. Spiral vessels convey oxygenated air.

22. Other vessels probably conduct fluid when young, and air when old.

23. As the bodies of which all tissue is composed are perfectly simple, unbranched, and regular in figure, having, when elongated, their two extremities exactly alike, they are more or less capable of conveying gaseous matter or fluids in any direction; and, consequently, a current may be reversed in them without inconvenience: hence, inverted cuttings or stems will grow.

24. All parts of plants are composed of tissue, whether they be soft, as pulp; or hard, as the bony lining of a peach.

25. With regard to horticultural operations, the parts of plants should be considered under the heads of *Root* (II.); *Stem* (III.); *Leaf-buds* (IV.); *Leaves* (V.); *Flowers* (VI.); *Sexes* (VII.); *Fruit* (VIII.); and *Seed* (IX.).

II. ROOT.

26. The root is the part that strikes into the earth when a seed begins to germinate and which afterwards continues to lengthen beneath the soil.

27. It is also the part which is sometimes emitted by the stem, for the purpose of absorbing nutriment from the atmosphere; as the ivy, air-plants, vines, &c.

28. It is distinguished from the stem by the absence of leaves in any state, of regular leaf-buds (IV.); of evaporating pores or stomata (131.); and of pith in exogenous plants,

29. Therefore, such underground bodies as those called tuber (61) in the potato; bulb (96.) in the onion; and solid bulb or cormus (61.) in the crocus, are not roots.

30. The office of the root is to absorb food in a fluid or gaseous state; and also to fix the plant in the soil, or to some firm support.

31. The latter office is essential to the certain and regular performance of the former.

32. It is not by the whole of their surface that roots absorb food; but only by their young and newly formed extremities, called *spongioles*.

33. Hence the preservation of the spongiole in an uninjured state is essential to the removal of a plant from one place to another.

34. A spongiole consists of very young vascular tissue (12.), surrounded by very young cellular substance. (5)

35. It is therefore one of the most delicate parts of plants, and the most easily injured.

36. Hence whatever is known to produce any specific deleterious action upon leaves or stems, such as certain gases (298.) and mineral or vegetable poisons, will produce a much more fatal effect upon the spongioles.

37. These organs have no power of selecting their food, but will absorb whatever the earth or air may contain, which is sufficiently fluid to pass through the sides of their tissue.

38. So that if the spongioles are developed in a medium which is of an unsuitable nature, as they will still continue to absorb, they cannot fail to introduce matter which will prove either injurious or fatal to life, according to its intensity.

39. This may often explain why trees suddenly become unhealthy, without any external apparent cause.

40. Plants have the power of replacing spongioles by the formation of new ones; so that an individual is not destroyed by their loss.

41. But this power depends upon the co-operation of the atmosphere, and upon the special vital powers of the species.

42. If the atmosphere is so humid as to hinder evaporation, spongioles will have time to form anew, but if the atmosphere is dry, the loss by evaporation will be so much greater than can be supplied by the injured roots, that the whole system will be emptied of fluid before the new spongioles can form.

43. This is the key to transplantation. (XV.)

44. As roots are destitute of leaf-buds (IV.), and as leaf-buds are essential to the multiplication of an individual (108.), it should follow that roots can never be employed for the purpose of multiplication.

45. Nevertheless, roots when woody have, occasionally, the power of generating adventitious leaf-buds (IV.); and when this is the case, they may be employed for the purpose of multiplication; as those of cydonia japonica, &c.

46. The cause of this power existing in some species, and not in others, is unknown.

47. It is therefore a power that can never be calculated upon; and whose existence is only to be discovered by accident.

48. Although roots are generated under-ground, and sometimes at considerable depths, yet access to a certain quantity of atmospheric air appears indispensable to the healthy execution of their functions. This is constantly exemplified in plants growing in the earth at the back of an ill-ventilated forcing house, where the roots have no means of finding their way into the earth on the outside of the house.

49. It is supposed by some that the introduction of oxygen in their system is as indispensable to them as to animals.

50. It seems more probable that the oxygen of the atmosphere, seizing upon a certain quantity of carbon, forms carbonic acid, which they absorb, and feed upon.

51. It is at least certain that the exclusion of air from the roots will always induce an unhealthy condition, or even death itself. This may be one of the reasons why stiff tenacious soils are so seldom suited to the purposes of the cultivatior, until their adhesiveness has been destroyed by the addition of other matter.

52. Spongioles secrete excrementitious matter, which is unsuitable to the same species afterwards as food; for poisonous substances are as fatal to the species that secrete them as to any other species.

53. But to other species the excrementitious matter is either not unsuitable, or not deleterious.

54. Hence, soil may be rendered impure (or, as we inaccurately say, worn out,) for one species, which will not be impure for others.

55. This is the true key of the theory of rotation of crops.

56. This also may serve to explain in part why light soil is indispensable to so many plants, and heavy or tenacious soil suitable to so few: for in the former case the spongioles will meet with little resistance to their elongation, and will consequently be continually quitting the place where their excrementitious matter is deposited; while in the latter case, the reverse will occur.

III. STEM.

57. The stem is that part of a plant which is developed above-ground, and which took an upward direction at the period of germination.

58. It consists of a woody axis, covered by bark having stomata (131.) on its surface, bearing leaves with leaf-buds, in their axillæ, and producing flowers and fruit.

59. The points where leaves are borne are called *nodi;* the spaces between the leaves are *internodia*.

60. The more erect a stem grows, the more vigorous it is; and the more it deviates from this direction to a horizontal or pendulous position, the less is it vigorous.—*(To to continued.)*

☞ The agriculturists in the western part of this state are making laudable exertions to stock their farms with an improved breed of cattle. This they are enabled to do now, without sending to England, some of the enterprising farmers in this vicinity having, some years ago, imported extensively from the best herds in Europe.

Within a few days, some of these fine cattle, purchased by G. V. Sackett, Esq. of Seneca-Falls, and the Hon. Samuel Clark, Esq. of Waterloo, were sent west by the canal. Their beauty, in passing through the streets, excited general admiration.

The stock consisted of a full blood "improved Durham short-horned" bull, purchased of Matthew Bullock, Esq. of Bethlehem. He was of a light roan, five years old, of beautiful form and symmetry, combining all the good qualities calculated to perpetuate the breed of this noble variety of cattle. He was short in the leg—deep and broad in the chest—straight in the back—hips low—broad on the loin—his head and neck were the finest we ever saw on a bull—was perfectly quiet and docile—in fine condition—and weighed on the scale 2000 lbs.

The remainder consisted of a heifer, not quite three years old, with a beautiful calf by her side, and a yearling heifer, and a pair of Bakewell sheep, purchased of C. N. Bement. The heifer, though low in flesh, showed a good frame, and all the good points for a deep milker, which was evident from the appearance of the splendid calf running by her side. The yearling was in better condition, and commanded the admiration of all who saw her. Two were of a light roan, the other dark red and white.—*Evening Journal.*

Young Men's Department.

HINTS TO THE YOUNG OF BOTH SEXES.

CONDITIONS REQUIRED FOR EFFICIENT RESPIRATION.

No fact in medicine is better established than that which proves the hereditary transmission from parents to children of a constitutional liability to pulmonary disease, and especially to consumption; yet no condition is less attended to in forming matrimonial engagements. The children of scrofulous and consumptive parents are generally precocious, and their minds being early matured, they engage early in the business of life, and often enter upon the married state before their bodily frame has had time to consolidate. For a few years every thing seems to go on prosperously, and a numerous family gathers around them. All at once, however, while still very young, their physical powers begin to give away, and they drop prematurely into the grave, exhausted by consumption, and leaving children behind them, destined in all probability either to be cut off as they approach maturity, or to run through the same delusive but fatal career as that of the parents from whom they derived their existence.

Many examples of this kind might be pointed out among the higher classes of society, who are not restrained from following their predominant inclinations, by any necessity of seeking subsistence in professional pursuits. And many instances might be referred to, in which no regard was shown to the manifest existence of the same disposition in the family of either parent, and in which ,consequently, the marriage state was embittered either by barrenness, which is then the most favorable result, or by the prevalence of disease and delicacy in the progeny. It may not be easy to enforce upon the young and inexperienced the requisite degree of attention to these circumstances; but surely education, especially when backed by example, might do much, if the young were properly instructed, at an early period, in the leading facts and principles of the human constitution. Where there are hereditary precocity and delicacy of frame, marriage, instead of being hastened, ought invariably to be delayed at least till the fullest maturity and consolidation of the system: otherwise the consequences will be equally unhappy for the individual and for his future progeny. During growth, and for a considerable time after growth has ceased, the constitution is still imperfect, even in healthy subjects, and wants the enduring strength which it afterward acquires in mature age, and the possession of which marks the period which nature has fixed for the exercise of the functions of reproduction. Many young people of both sexes fall sacrifices to early marriages, who might have withstood the ordinary risks of life, and lived together in happiness, if they had delayed their union for a few years, and allowed time for the consolidation of their constitutions.

I have urged this point strongly, because hereditary predisposition is, avowedly and beyond all doubt, the most frequent source of the more serious forms of pulmonary disease, and it would be worse than folly to allow past and painful experience to go for nothing. Medical men have much in their power in preventing such violations of the laws of the Creator, at least where they are regarded, as they always ought to be, as the friends as well as the professional advisers of the family.

The free and easy expansion of the chest is obviously indispensable to the full play and dilatation of the lungs: whatever impedes it, either in dress or in position, is prejudicial to health; and, on the other hand, whatever favors the free expansion of the chest equally promotes the healthy fulfilment of the respiratory functions Stays, corsets, and tight waistbands operate most injuriously, by compressing the thoracic cavity and impeding the due dilatation of the lungs; and, in many instances, they give rise to consumption. I have seen one case, in which the liver was actually indented by the excessive pressure, and long continued bad health and ultimately death were the results. In allusion to this subject, Mr. Thackrah mentions, that men can exhale, at one effort, from six to ten pints of air, whereas in women the average is only from two or four pints. In ten females, free from disease, whom he examined, about the age of 18½, the quantity of air thrown out averaged 3½ pints; while, in young men of the same age, he found it amount to six pints. Some allowance is to be made for natural differences in the two sexes, but enough remains to show a great diminution of capacity, which can be ascribed to no other cause than the use of stays.

The admirable harmony established by the Creator between the various constituent parts of the animal frame, renders it impossible to pay regard to or infringe the conditions required for the health of any one, without all the rest participating in the benefit or injury. Thus, while cheerful exercise in the open air and in the society of equals is directly and eminently conducive to the well-being of the muscular system, the advantage does not stop there; the beneficent Creator having kindly so ordered it, that the same exercise shall be scarcely less advantageous to the proper performance of the important function of respiration. Active exercise calls the lungs into play, favors their expansion, promotes the circulation of the blood through their substance, and leads to their complete and healthy development. The same end is greatly facilitated by that free and vigorous exercise of the voice which so uniformly accompanies and enlivens the sports of the young, and which doubles the benefits derived from them considered as exercise. The excitement of the social and moral feelings among children engaged in play is another powerful tonic, the influence of which on the general health ought not to be overlooked; for the nervous influence is as indispensable to the right performance of respiration, as it is to the action of the muscles or to the digestion of food.—*Combe's Physiology.*

The following is an extract of a letter from a young gentleman about bursting his minority, and to think and act for himself, who has been brought up in mercantile business in the city of New-York, to his father. Its language is so ingenuous, and its sentiments so correct, that we have asked and obtained leave to publish it:

"I wrote you that I would like to enter the agricultural profession. Now I will merely say that it was not the thought of a moment, but I have had it long on my mind—and my ambition would be satisfied, even in the humble, independent capacity of a tiller of the ground, and had I not thought that I might be of service to you I would not have broached the subject that had so long been on my mind. For the last three or four months, instead of spending my time in idleness, I have taken up and perused many works on agriculture, and I do not know when I have taken up any thing of so much interest, and I flatter myself that I have got some instruction. Last evening I took up a No. of the Cultivator, and while reading it over, I could not help notice one subject, it was on the importance of education If you have the Cultivator near at hand, and will take the trouble to look at No. 12, page 192, and in the middle column, you will find a subject that I think very true. While reading it, I could not help thinking that I was one of those precious few, who was willing to abandon the *pernicious* luxuries and pleasures, the *exciting, harassing,* and *perplexing* cares of city and commercial life, for the simple fare and humble occupations of the country. During my sojourn in the city, I have seen and noticed persons in different occupations, and none were so happy and healthy as the farmer—his occupation is not so perplexing—his mind is more at ease—consequently he is a happier, healthier, and better man—and if there is any one who enjoys life, he is the man. I hope to hear from you soon on this subject, as I shall remain in suspense until I do—and my wish is, that you will conclude to let me share with you in the delightful pursuit of agriculture."

RECEIPTS, from April 24 to May 24, inclusive.—Nos. under 10 not noticed.

Adams, Jeff.		10
Augusta, One.		18
*Appling, Jeff.		44
Allen's Hill, Ont.		11
Adrian,	Mich.	22
Brandon,	Vt.	12
Burwell's Bay,	Va.	11
Bellville,	Ill.	11
*Baltimore,	Md.	53
Bloomfield,	Con.	11
Bethany,	Pa.	22
Brookline,	Ct.	17
*Bardstown,	Ky.	22
Bellevue	Mich.	11
*Cobleskill, Sch.		20
Canterbury, Or.		13
*Champion, Jeff.		22
*Clyde, Wayne,		28
Chillicothe,	O.	12
Canal Dover,	..	11
Cayahoga Falls,	..	22
Circleville,	..	14
Clarksville,	Va.	11
*Charleston,	Va.	55
*Castleton,	Vt.	18
Chaptico,	Md.	11
Cassville,	Wis. T.	34
*Carrolton,	Ill.	45
Clinton,	Ten.	11
Dexter.	Mich.	14
Darnestown,	Md.	14
Edgcomb's corners, Sa.		22
*E. Pembroke, Gen.		17
Evan's Mills, Jeff.		11
Eugene,	Ind.	22
E. Roxbury,	Vt.	10
E. Bethel,	..	11
Exeter,	Pa.	11
Exp. Mills,	Pa.	11
Fultonville, Mont.		22
Five Corners, Cay.		26
Fairfield, Herk.		10
Franklin Mills,	O.	15
Farmington,	Ct.	15
Fort Wayne,	Ia.	26
Great Bend, Jeff.		10
*Goshen, Or.		28
*Geneva, Ont.		25
Grafton,	Vt.	14
*Greenwich,	N. J.	74
Gaylord's bridge,	Ct.	13
Guilford,	Ct.	22
Gt. Barrington,	Mass.	10
Hudson, Col.		13
Hill,	N. H.	11
Hill's Grove,	Pa.	10
*Johnson's creek,	Niag.	11
Ledyard, Cay.		17
Lowville, Lewis,		11
*Lee,	Mass.	13
Louisa C. H.	Va.	11
*Laporte,	Ia.	38
La Fayette,	Ia.	22
*Potsdam, St. Law.		34
Pleasant Hill, W. C.		12
Penfield, Mon.		12
Pikesville,	Md.	11
*Philadelphia,	Pa.	156
Pike River,	W.Flo.	10
Pattonsburgh,	Va.	11
*Princess Ann,	Md.	44
*Pittsford,	Vt.	23
Quebec,	L. C.	140
*Richmond, Rich.		27
Richmond,	O.	11
Rock Creek,	Ten.	11
*Rock Hill,	Ky.	22
Shawangunk, Uls.		10
*Speedsville, Tomp.		23
Smyrna, Chen.		14
Setauket, Suff.		11
*Skaneateles, Mad.		17
*Saratoga Spa,		21
*Stockholm, St Law.		14
Seneca Falls, Sen.		18
*Sennet, Cay.		23
So. Egremont, Mass.		14
*St. Albans,	Vt.	40
Saundersville,	Ia.	12
Smithfield,	Mich.	11
Spring Arbor,	..	11
Sewicly Bottom,	Pa.	11
Sylvania,	Pa.	10
*Sharon,	Ct.	24
So. Woodstock,	Vt.	10
*Shawnee Run,	Ky.	22
Salina,	Ky.	11
Smithboro,	Ill.	22
Spencer,	Ia.	11
*Trumansburgh,	Tom.	39
Utica, One.		72
Verona, One.		23
*Warren, Herk.		53
W. Winfield, Herk.		18
Waterloo, Sen.		22
Weathersfield,	Ct.	11
Wilbraham,	Mass.	26
Wilmington,	Va.	31
*Westfield,	Mass.	29
Wallace,	Ia.	11
*Westfield,	Vt.	28
*York, Liv.		29

*Including former paym't.

Total subscriptions received during 32 days, 2,251.

PRICE CURRENT.

ARTICLES.	N. York. May 27.	Boston. May 24.	Philadel'a. May 22.	Baltimore. May 23.
Beans white, bush........	1 25.. 1 50	3 00.. 4 00	1 62..	1 75
Beef, best. cwt...........	7 00.. 9 00	7 50.. 7 77	8 00..8 50	9 50
Pork, per cwt............	9 00..11 00	10 00..12 00	8 50	8 50..8 77
Butter, fresh, pound, ...	14.. 15	20.. 25	25.. 31	25.. 31
Cheese, pound, ...	8.. 10	10.. 12	10.. 12	13.. 14
Flour, best, bbl......	9 00..10 00	10 25..10 50	9 00	10 0..12 0
GRAIN—Wheat, bushel, ..	1 42.. 1 60	1 60	2 10	1 40..1 56
Rye, do. ..	75.. 90	1 00.. 1 10	1 15	90
Oats, do. ..	50..	62.. 65	53	43.. 46
.Corn, do. ..	1 00	1 02.. 1 10	94	85.. 86
SEEDS—Red Clover, lb...	13	14.. 16	9.. 11	10.. 13
Timothy, bushel,.	2 50.. 2 75	2 87.. 3 12	2 75	3 00..3 50
WOOL—Saxony, fleece, lb.	70.. 75	70.. 75	66.. 73	50.. 60
Merino, lb..... .	55.. 68	60.. 70	58.. 62	45.. 50
1-4 and com. lb...	45.. 50	45.. 50	40.. 44	33.. 36
Sheep, ...	....	10 50		
Cows and Calves,........	18 00..45 00	24 00..40 00	....	26 0..40 0

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

VOL. IV. ALBANY, JULY, 1837. No. 5.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor*.
☞ *Office No. 3 Washington-street, opposite Congress Hall.* ☜
TERMS.—FIFTY CENTS PER ANNUM, TO BE PAID IN ADVANCE.

Special Agents.—JUDAH DOBSON, Philadelphia—Messrs. HOVEY, Boston—ISRAEL POST & Co. Booksellers, 88 Bowery; ALEX. SMITH, Seedsman, Broadway, and G. R. GARRETSON, Seedsman, 111 Fulton-street, New-York.—ALEXANDER WALSH, Lansingburgh, gratuitous agent. Any gentleman who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

☞ We promised to increase the quantity of matter in the Cultivator. This has been done by using a smaller type. Each number of this publication now contains as much matter as ninety-five pages of Chaptal's Chemistry applied to Agriculture, and about as much letter press as four weekly, or one monthly number, of the Penny Magazine, reputed to be the cheapest publication in the world. The Penny Magazine sells at *one dollar and fifty cents* per annum, the Cultivator, containing about the same quantity of letter press, sells at—*fifty cents !*

AGRICULTURAL IMPLEMENTS.

In pursuance of the recommendation of the State Agricultural Society, the subscribers, a committee appointed for the purpose, will meet at the City Hotel, in Albany, *on the second Tuesday in July inst.* at 10 o'clock A. M. to examine and test any agricultural implements which may be offered for their inspection; and to certify to the merits of such as they may find deserving of public patronage. Inventors and venders of new implements and machinery are invited to attend, and previously to notify the secretary, J. K. Paige, Esq. of the implements they intend to exhibit, by letter, post-paid. July 1, 1837.

JOEL A. NOTT,
A. VAN BERGEN,
JESSE BUEL,
H. BURDEN,
J. P. BEEKMAN.

☞ Publishers of newspapers will render a public benefit by giving a gratuitous insertion to the above notice.

WHAT IS A USEFUL EDUCATION?

We put the question in reference to the great body of American youth, who are to earn their bread by the sweat of their brows, and, under Providence, to wield the future destinies of our country. Two principles should govern: *Teach them* TO PROVIDE FOR THEMSELVES HONORABLY, under any ordinary contingency,—*and qualify them to become* USEFUL TO SOCIETY. The times, as well as universal experince, abundantly admonish us, that however the children of wealth may indulge in indolence and dissipation—while their means last,—the great mass of American youth must, and ought, to depend upon their labor for their fortunes and their usefulness. Fortune is at best precarious; patrimonial dependance is uncertain, and reliance upon the friendship or charity of the world, or upon office, is frail and often debasing. Self-dependance is the only sure stay. *We are ever most willing to help those who help themselves.* Productive labor is the legitimate source of all our wealth, individual and national; and this labor is profitable to the individual and to the nation, *in proportion to the measure of intelligence and scientific knowledge which guide and direct its operations.* Hence it is of primary importance, that our youth should be efficiently taught to labor, and that their minds should be early imbued with that kind of knowledge which will instruct them in the principles of their business, render it honorable, and make them independent in conduct and in fortune.

We have, to be sure, colleges and academies in abundance, more than can be well supported, or that can be made economical and useful. But these are in a measure consecrated to the learned professions—to the privileged few—for they are privileged, inasmuch as they are the exclusive recipients of public bounty in the higher branches of learning. Productive labor derives little or no advantage from their teachings. Few of the youth who enter their halls ever seek for a livelihood in the laboring arts. They learn to look upon labor, as servile and demeaning, and to seek their level in what they consider the *higher classes* of society. They do not go to these schools to *learn to work*, or to *learn to live by work*,—in the common meaning of these terms—but to *learn to live without work—above work.* They are virtually withdrawn from the producing classes. These young aspirants flock to the learned professions, and the genteel employments, as the avenues to honors and to office; and notwithstanding that labor is taxed heavily, in one way or another, to supply their real or imaginary wants, yet the *genteel* professions have become so overstocked, and the threshold of power so thronged with supplicants, that hundreds and thousands are thrown back, as parasites, upon society, exhibiting the melancholy spectacle of men, born to be useful, but unable, or unwilling, from the bias of a wrong education, to become so Had these men been taught to look upon labor, as it truly is, a necessary, healthful, independent, and honorable employment, *and been instructed in its principles and its practice*, while young, they would have cherished its interests, respected its virtues, and cheerfully shared in its toils and its pleasures. We seek not, by these remarks, to pull down that which is, but to build up that which is not. It is not that we love a part less, but the whole more. We would raise the standard of labor, without depressing that of literature.

We have common schools too, munificently endowed, where all may acquire the *rudiments* of knowledge, but the rudiments only. They teach nothing of the sciences which are necessary to the successful prosecution of the arts—and give no instructions in the best models of practice. They neither learn the boy how to provide for himself, nor fit him for extensive usefulness. They lay the foundation, but they do little to build up and beautify the temple.

We find in the London and Westminster Quarterly, in an article on the means of lessening the evils of pauperism, some very apposite remarks upon this subject, which we here transcribe:

"We advocate," says the Review, "both for England and Ireland, the necessity of a national provision for the moral and industrial training of the young. In the old we cannot hope for much improvement. But the new generation springing up might be modelled to our will. Schools are wanted; but not such as are now spreading over the country, to teach a little reading and writing, as if that embraced the whole business of life, and the whole duty of man—schools in which both boys and girls should learn to employ both their heads and their hands—in which they should be taught practically the use of various tools, and in which such general information should be imparted, relating to different branches of industry, [the rights and duties of citizens,] and the resources of other countries and their own, as would enable them to begin to mount the uphill path they would have to climb in after life, with a heart full of hope, and with a spirit of energy and intelligence which no difficulties would overcome."

Who will tell us why it is, that classic schools, available only to those who design to live without labor, are made the special and exclusive objects of legislative bounty, in regard to the higher branches of instruction? Why is it, that six or seven thousand youths, which is about the number in our colleges and academies, should receive gratuities from the public treasury, till the aggregate exceeds three millions of dollars, to enable them to live without work, while half a million of other youth, with like capacities and like claims, destined to labor, and to augment the resources, the wealth and the happiness of their country, are denied a miserable pittance, in the higher branches of knowledge, to qualify them for their more important duties in society? Is not knowledge as beneficial to the arts of labor, as it is to the learned professions? Is it not as efficiently and beneficially applied in developing the riches of the earth, in perfecting the mechanic and manufacturing arts, and in augmenting the products and profits of labor generally, as it is in the warfare of party politics, in the chicanery of the law, and in prolonging unprofitable debate in our legislative halls? May not natural science be as profitably studied and applied on the farm, where nature is constantly presenting new subjects of illustration and appliance, as in the town or in the closet? Is not chemistry, which instructs us in the nature and properties of all bodies, as useful to the farmer, in ascertaining the qualities of his soils, and their adaptation to particular crops, and in regulating the multifarious operations of husbandry,—and to the artizan, in managing his various processes,—as it is to the lawyer, the statesman, or the divine? There is probably no employment in life that embraces so wide a scope of useful study, as that of cultivating the soil. The great use and end of science is to improve art, to impress us with a sense of our obligations to God, and of our duty to man. In truth, science belongs to, and constitutes an integral portion of the arts, and cannot be divorced from them without throwing us back into a state of semi-barbarism, such as now debases a great portion of the population of the old continent. Why then teach science exclusively to the few, who have comparatively so little use for it, and withhold it from the many, to whom it would be a help and a guide?

We look to Europe for precedents, and blindly adopt some that are prejudicial, as well as many that are good. We forget that we are a new people in government, manners and laws, and that there is no country which will serve as our model in all cases The education bestowed upon the working classes in Europe is designed to qualify them for the subordinate stations in society—for labor and obedience, as *subjects.* There governments recognize a privileged class—who are the owners of the soil, and live upon the labors of the many. The working classes have very little to do with the affairs of government. Here all are professedly upon a footing of equality. All enjoy political rights, and have political duties to perform—and all should be equally favored, so far as the public bounty is dispensed in the means of obtaining useful knowledge, and of acquiring wealth and honors. We should take care to have good farmers and good mechanics, as well as good lawyers and good doctors. We want not only good *subjects*, but intelligent *freemen*—high-minded, independent freemen, "who know their rights, and knowing, dare maintain them." We wish to keep the fountains pure, that the stream of power may not become defiled. We wish to base our political and social fabric upon a rock, steadfast and sure—upon the intelligence, industry and moral rectitude of the great working community. When this class shall cease to exert a healthful and a controling influence in political affairs, our boasted freedom will be at an end. A privileged class, whom the bounty of government has assisted to arm with exclusive power, will control and direct the political machine, as may best subserve their aggrandizing views, without regard to the common weal. Ambition is the same in all ages and countries. Man loves power, and is corrupted by it; and in its prolonged exercise, the servant will ever swell into the master. Our freedom can only be securely guarded by the vigilance of an enlightened, independent, prosperous yeomanry.

Men have tried all sorts of expedients, for thousands of years, to obtain wealth and happiness; and after all, it has become pretty evident, that there is no course that wears so well—that is so self approving—that is so certain in its success; that gives so much health, contentment and independence—the substantial elements of happiness—as habitual industry, tempered and directed by a cultivated mind,—be it in the learned or laboring professions. The consciousness, that we are not only providing for ourselves, and those naturally dependent upon us, but that we are doing good to society, and thereby fulfilling one of our highest moral obligations, is a rich source of enjoyment, to which the indolent and dissipated must ever remain utter strangers.

We say, therefore, that we want schools of moral, industrial and scientific instruction for the working classes of society—that these classes are entitled to them—and that their establishment would conduce alike to the prosperity of our country, and to the perpetuity of our political and religious freedom.

NUTRITIVE PRINCIPLE OF ANIMAL FOOD CONTAINED IN GRAIN AND ROOTS.

This subject has engaged the attention of chemists for some time. M Raspail has at length announced, as the result of numerous microscopic examinations and experiments, that the nutrient matter of grain and roots is enveloped in shining, white, smooth globules, quite insoluble in cold water, even when immersed for a length of time;—that these globules consist of an envelope, or shell, and a kernel; that the envelope is even insoluble in boiling water; that the kernel contained in the globular envelope, consists of a gum-like matter;—that when immersed in water at 122°, the kernel expands, and the envelope bursts at boiling heat, but is never decomposed; that in much water the envelopes are detached, and subside—but when the quantity is small, they become mutually entangled, and form jelly, or the starch of the laundry. The kernel of these globules is termed *dextrine.* The globules differ in size in different grains and roots. In wheat they are 2-1000 parts of an inch. In the potato they are double this size; while in buckwheat they are only 1-10,000 part of an inch in size.

During the investigations of M. Raspail, the following facts seem to have been established:

"1st. That the globules constituting meal, flour, and starch, whether contained in grain or roots, are incapable of affording any nourishment as animal food till they are broken.

"2d. That no mechanical method of breaking or grinding is more than partially efficient.

"3d. That the most efficient methods of breaking the globules are by heat, by fermentation, or by the chemical agency of acids or alkalies.

"4th. That the dextrine, which is the kernel, as it were, of each globule, is alone soluble, and therefore alone nutritive.

"5th. That the shells of the globules, when reduced to fragments by mechanism or heat, are insoluble, and therefore not nutritive.

"6th. That, though the fragments of these shells are not nutritive, they are indispensable to digestion, either from their distending the stomach and bowels, or from some other cause not understood, it having been proved by experiment that concentrated nourishment, such as cane-sugar, essence of beef, or osmazome, cannot long sustain life without some mixture of coarser and less nutritive food.

"7th. That the economical preparation of all food containing globules of fecula, consists in perfectly breaking the shells, and rendering the dextrine contained in them soluble and digestible, while the fragments of the shells are at the same time rendered more bulky, so as the more readily to fill the stomach."

These facts sufficiently explain, what before was but imperfectly understood, why grain, meal and roots develope additional nutritive properties by being cooked, or undergoing the process of fermentation; and should encourage us to persist in the practice of boiling or fermenting our hog feed, if not the food of our horses and neat cattle. The globules, it is true, may be partially broken, and the dextrine developed, by the heat and fermentation of the stomach, particularly in animals possessed of powerful digestive organs; yet when they are in a manner gorged with food, to hasten the fattening process, there is good reason to believe, that without the aid of previous heat or fermentation, much of the nutrient properties of grain and roots is wasted. This discovery goes, also, to demonstrate the utility of the practice, common in many states of the European continent, of feeding their horses with bread, instead of meal or grain—the globules being completely ruptured in the process of baking.

FAT ANIMALS AND LARGE CROPS,

RESULT ALIKE FROM AN ABUNDANCE OF PROPER FOOD.

The profits of crops, as well as of cattle, depend mainly upon the return they make for the food and labor bestowed upon them. The man who grows a hundred bushels of corn, or makes a hundred pounds of meat, with the same means and labor that his neighbor expends to obtain fifty bushels, or fifty pounds, has a manifest advantage; and while the latter merely lives, the former, if prudent, must grow rich. He gains the entire value of the extra fifty bushels, or fifty pounds. This disparity in the profits of agricultural labor and expenditure is not a visionary speculation—it is matter of fact, which is seen verified in almost every town. We see one farmer raise 80 bushels of corn on an acre of land. with the same labor, but with more foresight in keeping his land in good tilth, and feeding better his crop, that his neighbor employs upon an acre, and who does not get 40 or even 30 bushels. This difference results from the manner of feeding and tending the crop.

If the farmer, for the convenience of transportation to market, wishes to convert his grain, and his forage, and his roots, and his apples, into beef and pork. what is his judicious course of proceeding? Does he dole these out to his cattle and his hogs in stinted parcels, just sufficient to sustain life, or to keep them in ordinary plight? No. He knows that a given quantity of food is necessary to keep them as they are, and that the more, beyond this given quantity, which they can transform into meat, and the sooner they do it, the greater the profit. To illustrate our remark: suppose a hog requires twenty bushels of grain to keep him in plight for two years, and that he can manufacture fifteen bushels of this grain into pork in six months, if duly prepared and fed to him. In the one case, the owner has his lean hog at the end of two years, for his twenty bushels of grain; in the other, he has converted fifteen bushels of this grain into pork—into money—at the end of six months, saved the keep of the hog for eighteen months, and twice or thrice turned his capital to profit. Time is money, in these as in all other things appertaining to the farm — The proposition may be thus stated— that which will barely *keep* a hog two years, will *fatten* him well in six months. Therefore, the sooner we can convert our grain and forage into meat, with due regard to the health of the animal, and the true economy of food, the greater will be the profits which accrue. The remark applies to milk as well as meat. These facts teach us, to *keep no more stock than we can keep well;* and that, *one animal, kept well, is of more profit than two animals that are but half fed.*

If we apply these rules to our crops, they instruct us to *till no more land than we can till well*, and to *plant and sow no more than we can feed well;* for the fact must not be lost sight of, that our crops, like our cattle, live and fatten upon vegetable matters. One hundred bushels of corn, or four hundred bushels of potatoes, may be grown upon four acres of land badly fed and badly tended; and this is probably about a fair average of these crops; while the same amount of corn or potatoes may be grown on *one* acre, if the crop is well fed and tended. The product being the same from the one acre as from the four acres, and the expense but a trifle, if any, more than one-quarter as much, it results, that if the crop on the four acres pays for labor and charges, three-fourths of the crop on the one acre is nett gain to the cultivator. Estimating the charges at $25 the acre, the price of corn at $1, and the potatoes at 25 cts. the well cultivated acre affords a profit, over and above the charges, of $75—while the crop on the four acres gives not a cent of profit, but merely pays the charges upon it. Though not in this degree, the same disparity exists in all the operations of husbandry; and the primary cause of the difference consists in feeding well, or feeding ill, the crops, as well as the cattle, which are the source of the farmer's profit.

Let us continue the analogy a little farther. Every one knows, that to have good cattle, it is necessary not only to have an abundance of food, but that much, in the economy of the fattening process, depends upon having it of suitable quality, and properly fed out. The grasses should be sweet and nutritious, the hay well cured, and the grain and roots broken or cooked. The man who should leave his cattle food exposed to waste, till it had lost half of its value, would hardly merit the name of farmer. Every one would say, *that man is going down hill.* Cattle, say they, must eat, and if we dont feed them, they will give us neither meat, milk, nor wool. And so must plants eat—they have mouths, and elaborating processes, and transform dung into grain, roots and herbage, with as much certainty and profit, as cattle convert grain, roots and herbage into meat, milk, &c.—Hence the farmer who disregards dung, or suffers it to waste in his yards, is as reckless of his true interest as he would be to neglect or waste his grain, hay and roots. Dung is the basis of all good husbandry. **DUNG FEEDS THE CROPS; CROPS FEED THE CATTLE; CATTLE MAKE DUNG.** This is truly the farmer's endless chain. Not a link of it should be broken, or be suffered to corrode, by indolence or want of use. Once broken, and the power it imparts is lost. Preserved, and kept bright by use, it becomes changed into gold. It is to the farmer the true philosopher's stone The man who wastes the means of perpetuating fertility in his soil, may be likened to the unfortunate sons of opulence, who waste, in habits of indolence and dissipation, the hard-earned patrimony of their fathers.

THE HARVEST PROSPECT,

Has brightened surprisingly within the last six weeks. In the valley of the Mohawk, through which we have recently passed, we never saw the crops look more propitious to the hopes of the farmer, than they now do, considering the backwardness of the season. The wheat, there, stands pretty well, and were it not for apprehensions from the grain worm, the prospect would be that of a good crop. Many of our readers abroad identify this insect with the hessian fly, and others with the wevil. It is neither. The hessian fly preys upon the stock of the wheat; the wevil upon the ripened grain, in the barn or in the bin; the grain worm destroys the wheat in the germ or milk. The spring grain and grass look very well, where any attention has been given to draining; and even Indian corn, though got in late, has come up well, and is of a good color. There has been an abundance—an excess of rain; and although "spring lingered long in the lap of winter," yet the warm weather in the last of May and first of June has caused such a luxuriant growth, that if the coming month is favorable, and the nipping frosts of autumn are delayed, the corn crop will yet be a tolerable good one. The prospect of the crops farther west, we are happy to learn, is equally flattering. Abundant crops will do more to mitigate present evils, than a hundred banks. The truth is, that as a national family, we bought sixty-four millions of dollars more last year than we sold—and the sixty-four millions balance must be paid before we can have easy times—*must be paid from the profits of agriculture.* Banks enrich individuals—good crops the country—the whole country. Then let us "speed the plough," and honor and instruct those who guide it.

ROOT CULTURE.

The root, and particularly the turnip culture, which has been extolled as the basis of improved husbandry in Great Britain, is rapidly extending among us; and we confidently anticipate from it the best practical results. Five years ago there was not probably two hundred pounds of ruta baga seed sown in the state; this year tons of this seed have been sown; and the culture of mangold wurtzel and carrots, has been also greatly extended. One seedsman has imported 26 cwt. of ruta baga seed, and this probably has not been more than a quarter, or a third, that has been sown. The supply has become exhausted, from Baltimore to Boston, and yet the demand has not been supplied. Our neighbor, Thorburn, has sold this season 1,500 lbs. ruta baga seed; 150 lbs. carrot do.; 100 lbs. parsnip do.; and 150 lbs mangold wurtzel do.; and, as indicating the extended culture of roots, and the advance of agricultural improvement, we add, that he has also retailed seventy cultivators; eighty drill-barrows; and seventy-five of Green's straw-cutters. We record these facts as affording, in our mind, substantial proofs of a propitious change, and of the efforts to improve, which are now being manifested in our agricultural community. And from the spirit of inquiry which is abroad, and the general circulation of agricultural periodicals, we hazard little in saying, that the rising generation will be better farmers, and more enlightened men, than their fathers have been. Let every young farmer ponder upon these facts, and to stimulate him to honorable exertion, let him remember, that he who aims to excel, will at least attain mediocrity; while he who aims at mediocrity will generally fall short of it. Cultivate the mind, as the sure means of increasing the profits of the hands.

DISEASES OF NEAT CATTLE.

Diseases in cattle, like those in man, are more easily prevented than cured. The best preventives are a plenty of wholesome food, dry pastures in summer, dry and clean sheds or stables, or well littered yards, in winter, and an ounce of salt per diem to cattle and horses, and a quarter of an ounce to sheep. Salt augments the nourishment of the food eaten, improves the wool, and prevents disease.

But disease will come. Many cattle die annually among us; and such is our ignorance of the causes and nature of their diseases, that in our attempts to cure, we often kill. Instruction in the anatomy and diseases of horses and cattle, constitutes a distinct branch of education in Europe; and the veterinary surgeon holds there an important rank in the scale of science and of usefulness. Here the business has few practitioners above the grade of quack cattle doctors. We profess but little practical knowledge in the matter; but as we have been often applied to for advice, we have turned to our best authorities, and shall now give the symptoms, and mode of treatment, of some of the prominent disorders to which neat cattle are incident.

Remarking on the analogy between men and brute animals, Lawrence observes, that regular medical men can be alone qualified for the cure of diseases in our domestic animals; and he declares that *all "infallible receipts are infallible nonsense."* The "receipt of prevention," he adds, "is worth more than all the infallible cordials and medicines ever advertised. It should be considered, that animals living in a state of nature, regulated by the reason and experience of man, would be almost exempt from disease. That their appetites, unlike our own, may be held under a constant control. That their diseases result purely, even in the case of hereditary defects, from the negligence or erroneous treatment of their owners. They are either exposed too much to the rigors or changes of weather, or they are gorged with food, denied a sufficient quantity, or supplied with such as is unwholesome. Here we have the chief causes of their maladies. *Learn to prevent them*, instead of undertaking the tedious, unsuitable and hopeless task of learning to cure them."

Omitting the notice of ordinary fevers and colds, produced by over exertion, sudden changes of weather, and exposure to cold winds—for which bleeding, warm stimulating drinks, and stabling are prescribed, we pass to

PERIPNEUMONY—PLEURISY—INFLAMMATION OF THE LUNGS.—*Symptoms.*—Dry, painful cough, hot breath, laborious perspiration, sometimes a ropy discharge from the mouth, the hide feels hard, constringed and burning hot. This is another variety of disease from suppressed perspiration, generally occurring in the autumn or early spring, in hilly or exposed situations, on a sudden change from heat to cold, or during a long continuance of northeast winds. The *cure* consists in bleeding and cooling medicines, administered in the house [stable] where the animal may be kept from the weather, the original cause of the disease.—*See Lawrence on Cattle.*

THE YELLOWS.—This disease in cattle usually originates in hepatic, or liver obstruction, from cold; however, always from obstruction, which is most effectually opened by mild mercurial purges, notwithstanding the beast may appear weak and hide bound. *Symptoms.*—A general tremor over the animal in the morning, particularly in the hinder legs, loins and thighs; the eye-lids appear hollow; the whole body assumes a yellow cast; the nose is dry, and the ears often hang down; the dewlap, shoulders and loins swell; the udder of cows becomes tumefied, and produce little milk, which, in a few days, acquires a peculiar yellow tinge, coagulating when boiled; and lastly, the fore teeth become loose. The disease, if not speedily attended to, will in a few days settle in the interior parts, and induce murrain, dropsy, or other fatal disorder.—[*Willich.*] Take the patient to the barn, the earlier the better, and if he remain weak after two or three purges, give steel beer, milk warm, a pint twice a day, and good keep. One gallon of good beer, three or four ounces of iron filings, infuse in a stone bottle corked up three or four days, shake daily.—[*Lawrence.*] Purge two or three times with calomel and jalap, 40 grains of each.—[*Cooper.*]

MURRAIN.—This term corresponds with that of the plague, in the human species, and the diseases have a similar origin, namely, in putrid *miasmata*, or vapors inspired or drawn into the noses or mouths of animals, which animals being infected, acquire the power of infecting others by their breath or perspiration. The regular exit of the disease is in the eruption of suppurating biles or buboes, and the care of the physician is to prevent a fatal result the while from mortification. *Symptoms.*—Decrease of appetite; poking out of the neck from difficulty of deglutition or swallowing, shaking the head, hanging down of the ears and deafness; dullness of the eyes, moving about restless. About the fourth day, stupidity, unwillingness to move, great debility, total loss of appetite, running at eyes and nose, sickness, throwing up bile, husky cough, and shivering. Head, horns, breath very hot, body and limbs cold. Fever continual first three days, now rises; pulse quick, contracted, uneven. Constant *diarrhœa*, or scouring of fœtid green dung, stinking breath, nauseous steam from the skin, infecting the surrounding air. Blood florid, hot, frothy. Urine high colored. Roofs of the mouth and barbs ulcerated. Tumors or balls are felt under the fleshy membrane of the skin; eruptions all along the limbs, and about the bags of the cows. Milk dries up suddenly. Purging more violent. These symptoms continue increasing until the seventh day, on which, generally, although sometimes protracted till the ninth, the crisis, or turn, takes place.—[*Lawrence.*] The murrain is occasioned by various causes, but principally by a hot dry season, or a general corruption of the air. The remedy employed during a general prevalence of this distemper in Europe, both for its prevention and cure, consisted in a mixture of equal parts of gunpowder, salt, soot, and brimstone; one spoonful of this composition was given for a dose, and washed down with warm water. The most effectual preventive of this destructive contagion is, to keep the cattle cool during the summer, and to allow them a sufficiency of water. All carrion should be speedily buried; and as the feeding of those useful animals in wet places, or on rotten grass or hay, frequently causes this malady, their food ought to consist of dry and sweet fodder.—[*Willich.*] A correspondent in the Farmers' Cabinet says, "there are two processes recommended for the cure of the murrain in cattle; one of them is to give the animal one pint of spirits of turpentine, and in twenty-four hours afterwards a pint of olive oil or hog's lard; in forty-eight hours afterwards half a pint of spirits of turpentine, and in twenty-four hours after this, half a pint of olive oil or hog's lard. The other is to give a pint of flax seed oil, and in two hours afterwards two pounds of glauber salts, followed immediately by repeated doses of warm water, for ten or twelve hours."

ADVANTAGES OF SOILING CATTLE.

Von Thaer highly commends soiling over depasturing, and lays down the following facts as incontrovertible:

"1. A spot of ground which, when pastured upon, will yield sufficient food for only one head, will abundantly maintain four head of cattle in the stable, if the vegetables be mowed in proper time, and given to the cattle in a proper order.

"2. The stall-feeding yields, at least, double the quantity of manure from the same number of cattle; for the best and most efficacious summer manure is produced in the stable, and carried to the fields at the most proper period of its fermentation; whereas, when spread upon the meadows, and exhausted by the air and sun, its power is entirely wasted.

"3. The cattle used to stall-feeding will yield a much greater quantity of milk, and increase faster in weight, when fattening, than when they go to the field.

"4. They are less subject to accidents, do not suffer by the heat, by flies and insects; are not affected by the baneful fogs that are frequent in Germany, and bring on inflammations; on the contrary, if every thing be properly managed, they remain in a state of constant health and vigor."—*Com. to the Board of Agriculture, vol. 1, p. 376.*

Our habits of farming take much from the force of Von Thaer's facts—for we neither regard land nor manure of any thing the value they do in Prussia; though if we should *run over* less of the former, and better husband and apply the latter, we should undoubtedly be the gainers. Our farmers are apt to boast of the acres they cultivate—of the bushels they sow; but it is very seldom you can come at their nett profits, or the products of an acre.

BREEDING.

Cooper gives us two excellent rules:

"1. Choose those animals or vegetables to propagate from, that possess the qualities you wish to propagate, in the greatest perfection. Volumes may be written to illustrate and confirm this advice, he adds, but nothing can be added to it substantially.

"2. Never quit one good breed, till you can pick out from a better. By following this plain method for a few generations, always seeking for those parents who have the points you want, in the greatest perfection, you will certainly improve your stock, whether of racers, cart-horses, cows, corn or strawberries."

THE VALLEY OF THE MOHAWK,

Is one of the most interesting districts that a stranger can visit, who has a taste for the useful and picturesque of nature. The flats are broad and of great natural fertility. The slopes from the intervale exhibit a diversified scenery, and afford beautiful sites for farm buildings, orchards and rural embellishments. The fertilizing Mohawk worms its way through the alluvial plain, while the canal on its southern, and the rail-road on its northern border, thronged with boats and cars, and enlivened by the bustle of commerce and travel, afford to the traveller scenes of high and varied interest. The agriculture of the valley has *begun* to improve. Some attention has been paid to draining—the ploughs have been somewhat improved, and there is evidence, though slight, that the value of manures begins to be appreciated. The crops look better than we ever saw them there. The great hindrance to good husbandry seems to be an excess of water, which may generally be got rid of by efficient draining. The existing drains are too shallow, and we saw no evidence of under-draining, for which the materials are abundant, and of the great utility of which we entertain not a doubt. The ploughing appeared to be every where superficial, while the quality of the soil seemed to demand that it should be deep—six to nine inches. Upon the lower levels ridging would prove efficacious in throwing off the surplus water—for small grains and grass, these might be ten to twenty feet, with deep clean middle furrows—for corn, two bout ridges, equal to three feet, would be advantageous in a season like the present. The whole valley might be made a garden, by draining, manuring and deep ploughing.

THE POST OFFICE.

The frequent failures in the receipt of monies, transmitted to us by mail, are matters of sore grievance, and will compel us, if the evil does not abate, to require, that remittances be made no longer at our risk.—The following letters, mailed as indicated, have been stolen from the mail, or lost, in the last four months:

Feb. 21,	mailed by	J. Hoy, Pittsfield, Mich.	$1
23,	do	M. Rainsville, Lexington, N. C.	5
23–27,	do	W. B. Platt, Rhinebeck,	10
March 1,	do	A. V. Wood, Woodville, Jeff.	5
15,	do	J. Donaldson, Nelson, Mad.	10
April 1,	do	Sol. Henkle, New-Market, Va.	10
1,	do	J. Stevens, Warsaw, Va.	5

ANTI-CATTLE CHOKER.

John Conant, of Brandon, Vt. adopts the following mode of removing obstructions in the throat of his cattle, which he affirms is an infallible remedy.

"I take gunpowder," says he in his letter to us, "put up in the form of a common sized cartridge, say three inches in length, introduce it with the hand into the throat of the animal, holding up the head for a moment to prevent its being spit out, and the creature will immediately eject whatever is in the throat without injury. All farmers know how to reach the throat with the hand by holding out the tongue."

☞ We are aware, as intimated by our New-York correspondent, that the Press Harrow is modelled after the "Spiked Roller;" yet we think the first an improvement on the latter; and whether Mr. Conklin borrowed somewhat from an European model or not, he is eqally entitled to the merit of introducing to our agriculture a highly useful implement. Our correspondent's suggestion in regard to hedges has been in part anticipated in our preceding volumes, yet we will comply with his wish. The great desideratum is to obtain an efficient plant that will resist the cold, the drought, and the moles, or ground mice. The English hawthorn suffers from the two first, and the honey locust from the last. Experience must yet decide, whether our native species of thorn, the apple, buckthorn, beach, &c. will answer best the desired purposes. No material, we are afraid, will be likely to succeed, without more care and perseverance than we are accustomed to bestow on this branch of improvement.

STUMP EXTRACTOR.

We have had inquiries from J. M. Garnet, Esq. of Virginia, and from others,

1. What is the price of the machine called a stump extractor?
2. How many oxen are required to work it?
3. How many men are required to manage it?
4. What will it perform? And,
5. What is its promised durability?

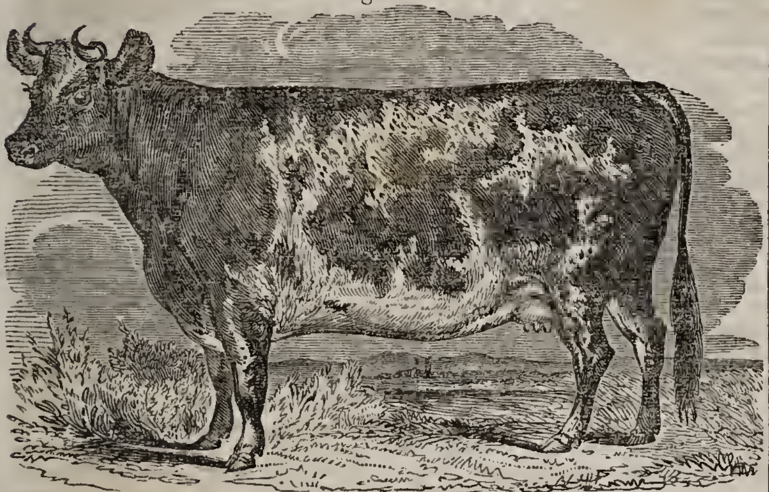
We have sought for information that might enable us to answer these questions satisfactorily, but with little success; and we now invite some gentleman to communicate the desired information. We are advised of a machine that is in operation in the valley of the Susquehannah, near the Pennsylvania and New-York line, which, with a pair of oxen and a compliment of men, will extract 200 medium sized pine stumps in a day—and that the price of the machine is $300.

To cure dogs of a sheep-killing propensity, a correspondent at Oxford, successfully adopted the following expedient, which we give in his own words:—"I had a dog which I had raised, and he got into the habit of running after sheep, for which he was frequently and severely whipped, with no other effect than to make him cautious about being seen at his mischief of worrying and killing sheep. Finding it necessary to kill or cure the dog, I called about sixty sheep into a yard containing about one-fourth of an acre, (the yard should be so large that the sheep may exercise the dog from side to side, without being too much crowded.) I then selected one of the strongest wethers, without horns, because horns would be like to get entangled in the rope, and retard the sheep—(a buck would probably do better.) I then tied one end of a flexible rope loosely round the sheep's neck, and the other round the dog's neck carefully, so as not to choke him, nor admit his head to draw out. The length of the rope should be such, that when it is tied on, the dog's head will be about three feet behind the sheep's hind feet, when the sheep is running.—Thus harnessed, the strangely mated pair was let off, and then the sport commenced, and continued, to the gratification of all who attended, about one hour; the wether having the full command, ran, pulling the dog rapidly, who, in his severe struggling to get away, went where he did not want to go, heels over head, among the sheep. The first fright of the sheep, (not of the dog,) being soon over, they stood still; and then by means of salt and calling, I kept them as quiet as I could, till the dog was sufficiently cowed. The wether then turned upon him, and played the battering-ram (butting,) with such effect that he made the dog cry for help, and would undoubtedly have killed him; but when I thought he had enough, I untied them. The dog, ever after this sporting match, showed a great antipathy to the company of sheep, and when they were called up where he was, he would go off and hide himself, and would never willingly go among sheep afterwards. That a dog may be cured, and sooner mastered and humbled by the sheep, I would advise to tie a cord round one or both his hamstrings, and that the manager of the sport be provided with a whip to keep the dog in order, in case he should incline to quarrel with his new yoke-fellow. If the first sheep tied to the dog should not butt him, tie another, till one be found that will, for *butting* is the very *cap-a-pie* of both the the sport and the final cure.

"G. D. AVERY."

BREEDS OF NEAT CATTLE.

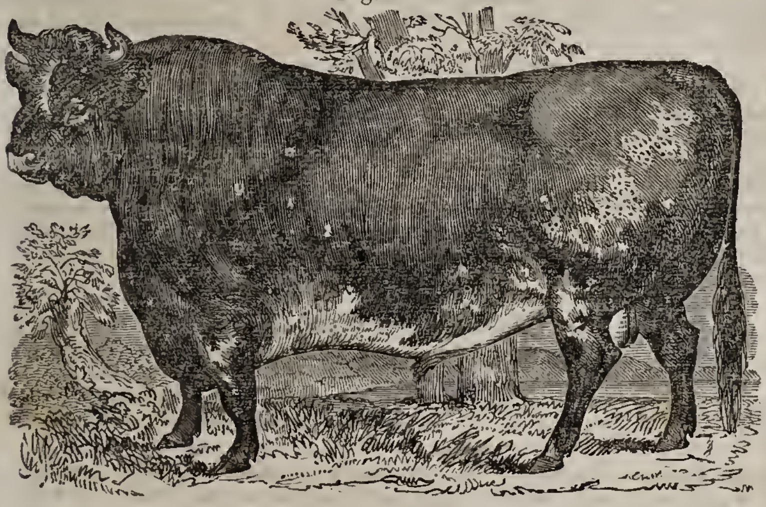
Fig. 30.



We published, in our first volume, a general account of the most approved breeds of cattle. To enable our readers the better to understand the peculiar characteristics of different breeds, we propose to give pictorial drawings of individuals of several breeds, with such remarks upon the peculiarities of each, and their adaptation to particular purposes of the farm, as may serve to assist in making a proper selection. Cattle are reared for the dairy, for labor and for the shambles. Different districts also require different breeds—heavy animals, which are profitable in fertile vallies, and upon rich pastures, not being the best adapted to hilly districts, or poor soils.

We begin with the Ayreshire, a Scotch breed, of rather small size, in high repute as dairy stock, and also for their quick fattening properties; a breed which seems well adapted to our dairy zone, or hilly lands of medium or light quality. Fig. 30 is the drawing of an Ayreshire cow, and fig. 31 that of an Ayreshire bull.

Fig. 31.



The following is given as the criteria of a good Ayreshire cow:—"*Head* small, but rather long and narrow at the muzzle; the *eye* small, but smart and lively; the *horns* small, clear, crooked, and their roots at considerable distance from each other; *neck* long and slender, tapering towards the head, with no loose skin below; *shoulders* thin; *fore-quarters* light; *hind-quarters* large; *back* straight, broad behind, the joints rather loose and open; *carcass* deep, and *pelvis* capacious, and wide over the hips, with round fleshy *buttocks*. *Tail* long and small; *legs* small and short, with firm joints; *udder* capacious, broad and square, stretching forward, and neither fleshy, low hung nor loose; the *milk veins* large and prominent; *teats* short, all pointing outwards, and at considerable distance from each other; *skin* thin and loose; *hair* soft and woolly. The head, bones, horns, and all parts of least value, small; and the general figure compact and well proportioned."

Product of the Dairy.—The fair average quantity of milk given by a cow, is stated at 600 gallons a year, which, considering her size, is very great. Five gallons per day, for two or three months after calving; three gallons for the next three months, and one gallon and a half during the succeeding months, is stated as a medium proportion. Mr. Aiton, a very good authority, says, hundreds and thousands of these cows, when well kept, will yield 1,000 gallons of milk in a year; that from 3¾ to 4 gallons of their milk will make 1½ lbs. avoirdupois of butter; and that 27½ gallons of their milk will produce 36 pounds of full milk cheese. As a mean average, it is affirmed, that a cow will make 257 lbs. of butter, or 514 lbs. of cheese, in a year, besides the value of her buttermilk, or whey, and calf.

It is remarked, that the Ayreshire cattle will fatten on farms where others could not be made to thrive at all; and that they unite, perhaps to a greater degree than any other breed, the supposed incompatible properties of yielding a great deal of milk and beef. Their superiority as milkers is most apparent, on the inferior soil and moist climate of the west of Scotland; and when transferred to rich pasture, their constitution changes, and they make more flesh and less milk. When dry, they take on flesh rapidly, which is of fine quality—the fat being interlarded with the flesh, rather than separated in the form of tallow.—*See "Cattle," in the Library of Useful Knowledge, p.* 126, *&c.*

MASSACHUSETTS AGRICULTURAL PREMIUMS.

The Massachusetts Society for the Promotion of Agriculture, have published a list of premiums, to be awarded principally the current year, amounting in the aggregate to more than $2,000. We subjoin an abstract of these premiums, as well for the information of our patrons in that state, as affording matter of general interest.

For the best cultivated farm,	$150
For the next best cultivated farm,	100
For the best rotation of crops on the same land, not less than two acres, for three or four years in succession, commencing when it is in grass,	75
For the best experiment in enriching land by turning in green crops, and without manure,	75
For the best mode of making compost, with dung muck or mud, with or without lime,	50

The preceding premiums to be claimed in 1838-'39.

For the greatest carrot crop on an acre,	30
" half an acre,	15
For the best acre of common beets,	20
" half acre of do.	10
best acre of mangold wurtzel,	30
" half acre do.	15
best acre of parsnips,	20
" half acre of do.	10
best acre of ruta baga,	30
" half acre of do.	15
best acre of common turnips,	20
" half acre of do.	10
best acre of onions,	20
" half acre of do.	10
best acre of cabbages,	20
" half acre of do.	10
For the greatest quantity of sugar beets, raised on not less than two acres, in the current and two following years, a premium, in each year, of	300
For like premiums for the greatest quantity of sugar manufactured from the beet in those years,	300
For the greatest quantity of vegetables, and a detail of the relative profits of feeding them to farm stock,	30
For the best Indian corn, wheat, rye, millet, peas, beans, mustard, flax and hemp, on an acre, premiums amounting in the aggregate to	210
For an effectual mode of extirpating the locust worm,	100
do. the apple tree borer,	50
For a newly invented and superior agricultural machine,	20
" the best experiment in feeding and fattening neat cattle,	20
" greatest quantity of homemade raw silk,	20
For the best plantation of oak, from seed, one acre, not less than 1,000 trees, three years old,	50
For the best like plantation of white ash, larch, and yellow locust, each $25,	75
For the best 50 rods of live hedge,	30

Claims for premiums to be forwarded to Benj. Guild, Esq. Boston, free of expense, generally before the fast day of December next.

Agricultural Survey of Massachusetts.—We are happy to learn, from the New-England Farmer, that the Governor of Massachusetts has appointed the Rev. H. Colman, favorable known to the agricultural reader, to be commissioner for making an agricultural survey of that state.

TRANSACTIONS OF THE OLD AGRICULTURAL SOCIETY.

We renew our notice of the first volume.

EFFECTS OF SEA-WEED AS MANURE.

Mr. L'Hommedieu, who was a large contributor to these volumes, gives a communication on manuring with sea-weed, and with shells. He contracted for one hundred tons of sea-weed, at fourteen pence per ton, which was applied to five acres of poor dry land, on which little grew but *five fingers* and *ground pine*, and the land was sown with wheat and clover. The product was about seventeen bushels of wheat the acre, and the second year a ton of clover; and the nett profit six dollars and fifty cents per acre on the wheat crop. The value of the land was enhanced from forty shillings to five pounds the acre.

DESTRUCTION OF HEDGES.

Mr. L'Hommedieu, in another communication, in 1794, gives an account of the entire destruction of the prim and black thorn hedges, amounting in the aggregate, in the towns only of East and Southampton, to four hundred miles of good fence. No cause is assigned for the sudden death of all the prim; but the black thorn was destroyed by a fly, "which makes a hole through the bark of the thorn, and there deposits its eggs or maggots; the sap of the thorn runs out at this hole and hardens on the bark, and becomes a hard bunch round the limb," prevented circulation, killed the limbs, and ultimately the plant. This is the same enemy that has attacked and destroyed many of our plums and morello cherries Mr. L'H. recommends the native thorn as a substitute for hedges, which, he says, makes a better fence than the European; but the same difficulty, of getting the haws to grow, which we now experience with the seed of the northern thorn, prevented its culture then. Mr. L'H. also recommends the sowing of apple seeds, or apple pomace, on the banks of ditches, that the plants, when grown a few years, may serve as a hedge.

ON IMPROVING LANDS BY CLOVER.

To improve a very poor piece of land, which grew only moss, five-fingers and a few daisies, Mr. L'Hommedieu succeeded by sowing upon it clover seed alone, four quarts to the acre. It gave a tolerable product, and improved the land. He considers this preferable to sowing clover with grain upon very poor land, as the grain exhausts the little fertility which the soil possesses, and the clover is consequently starved. The hint is worthy of notice.

ON RAISING CALVES,

Also from L'Hommedieu. The importance of taking calves early from the cows, and of keeping them well through the first season, that they may not be stinted in their growth, is particularly enforced. And calves, says the writer, do best in pastures where there is no water; as, from the habit of taking all their food from the cow in a liquid form, they are apt to drink too much, where they have access to water, and become pot-bellied. "Last year," says Mr. L'H. "I saw in a pasture without water, more than twenty calves, in which they had been kept from the time of their being taken from the cows till some time in the fall. I frequently saw them, and observed them more attentively on account of the particular manner in which they were kept. They were all thrifty, and particularly gaunt or small-bellied, which the owner, a gentleman of Suffolk, imputed to their not having water, and observed that he never had calves do so well before." "When there is no water in the lot, the calves, he supposed, are obliged to feed on grass which contains some moisture, and soon learn to allay their thirst while the dew is on, and for the sake of the moisture or dew on the grass, eat much more than they would do if they could go to water, and soon get accustomed to feed in the night and in the morning, before the dews are exhaled." Mr. L'H. attaches virtue to herbage when impregnated with dew, and thinks it possesses peculiar nutritive properties at that time. He instances a horse, which ate freely coarse sedge grass, and throve upon it, when charged with dew, but would not eat it when the dew was exhaled.

FREEING SEED GRAIN FROM OATS.

Barley and spring wheat are apt to be mixed with oats. The following is the mode recommended in the transactions for separating them. Take a large tub, filled with water, and let the barley or wheat run slowly into it; the oats and light grain will swim on the surface, and must be skimmed off—the heavy and vigorous grains will sink to the bottom, and are preserved for sowing.

LUCERN.

A paper on the culture and products of this grass, by P. De Labigaire, Esq. affords some facts worth noting. He says, plough twice, at least twelve or fifteen inches deep, and completely pulverize the soil. He prefers sowing the seed by itself, without grain or other grass, twenty pounds to the acre. The best dung for top dressing lucern, is hen and pigeon dung, first dried and pulverized, and sown sparingly, and the next, mud taken from creeks and swamps. The lucern acquires its full strength the third year, when, at three cuttings, it will yield 2,500, 1,400, and 600 pounds of hay. It may then be fed off. It should be mown when in flower, and alternated, in the mow, with barley or other straw.

MULBERRY HEDGES

Mr. De Labigaire gives us the European practice in this matter. And he states, too, what we commend to the particular notice of our prairie patrons, that red elm and birch are reckoned among the best plants for hedges, on account of their flexibility to be interwoven from the foot to the top, so as to be impassable. We can confirm this remark, in regard to the elm, from our own experience. Its top and branches may be intertwined in any direction, and yet live and grow. In the environs of Lyons, the mulberry had been successfully used for hedges, and not only made an efficient fence, but afforded abundance of food for the silk-worm. Hear what this correspondent adds:

"The 20th April, 1784, after the silk-worms were out of their first mewing, about 1,200 of them were spread upon a mulberry hedge. They remained exposed to the intemperance of the season, which, having been very cold, left little hopes of their succeeding. We took care to visit them every day, and particularly during the violent rains and most boisterous weather. They were never seen very sensitive to the cold, nor exerting themselves for shelter. On the contrary, they remained motionless, and bore well the storm. In short, neither the cold nor the heat appeared to make much impression upon them. They were free from the disorders commonly attending those attended with the greatest care and trouble in the houses. Notwithstanding the bad season, which we might have supposed would have killed them all, out of the 1,200 we gathered 450 cocoons, which proved to be the finest silk ever raised in France; these cocoons gave two pounds seven ounces raw silk."

TO RAISE THE MULBERRY HEDGE,

Mr. De Labigaire directs as follows: "Round the field to be enclosed, dig up a ditch three feet wide and two feet deep; the longest roots of the young plants being cut off near the hairy fibres, must be planted about eighteen inches deep, at the distance of three or four inches [twelve we think near enough,] from each other. After the ditch is filled up, every shoot must be cut at the height of two or three inches above the ground. Whether the plant is big or not, there is no matter, provided it is at least one year old. The time to plant these hedges is the beginning of April, [last of April or first of May here.] The second year it is necessary to cut again the shoots about six inches above the ground, in order to give more strength to the sprouting branches, which will form a pretty strong hedge the third year, and at last grow so thick as to be impassable by cattle. It may be twisted and interwoven a great deal easier than the hawthorn. If you choose to make a strong hedge, you may plant it in double rows. For three years the young wood must be defended against cattle. No insect attacks the mulberry."

The subject of mulberry hedges is deserving of all attention from silk-growers; and the experiment of making the home of the worm upon the hedge, is worthy of experiment, at least in the milder sections of our country.

The common *Mullein*, (Verbascum,) Harkhermer informs us, after being properly cleared of the adhering earth and other impurities, is extensively used in German granaries, roots, stocks and flowers, in order to prevent the depredations of mice, and that it affords a complete protection against these vermin. Bundles of it are placed in every corner, and on the grain itself. The mice will suddenly disappear from barns where it is placed.

Cellars.—It is a practice in Germany, worthy of our imitation, to keep open a communication between the cellars and the principle chimney of the house, to enable the noxious air, more or less generated there, to escape. It also promotes the draft of the chimney. The air in cellars often becomes highly deleterious to health, and the sickness of families may frequently be traced to the stagnant and noisome air in these underground apartments. Where there are different apartments in a cellar, ventilation should be provided for, by leaving a passage open over the doors of communication.

AGRICULTURAL PUBLICATIONS.

The New-York Farmer, published at New-York by Messrs. Minor & Shaeffer, hitherto a monthly publication, is now to be published semi-monthly, on a sheet of 16 pages, of the size of the Cultivator—price $3 a year, in advance. This was the earliest agricultural periodical established in this state, after the Ploughboy.

The Farmers' Cabinet, is the title of a neat, well conducted, agricultural periodical, of 16 octavo pages, published the last ten months at Philadelphia, by Moore & Waterhouse, at one dollar per annum, the numbers of which have recently first met our observation.

The Western Agriculturist, devoted to agriculture and the mechanic arts, has just been commenced at Ravenna, Ohio, by E. R. Selby, 8 pages, small quarto, monthly, at one dollar a year.

Cure for the Bloody Murrain.—J. J. Deming, of Mishawaka, Ia. writes us under date of May 15—"I have recently saved a valuable ox, which had the bloody murrain, (of which great numbers of cattle die in this country,) by giving a gallon of a strong decoction of red cedar boughs—then another gallon after three hours.

W. Murphy, of New-Scotland, asks our advice with regard to planting an orchard of peaches, pears and plums. His soil is clay, somewhat intermixed with gravel, sloping to the south-east, and sheltered on the north-west by high ground and wood. The soil seems adapted to the pear and plum, more than to the peach; the aspect is good, and the shelter beneficial He should plant varieties that come in succession, sufficient for family use, and select a good variety of each for the main market crop.—The holes should be dug three feet in diameter and eighteen inches deep, and filled, when the trees are planted, with the best surface mould. Cattle should be kept from the enclosure, and the ground about the trees kept clean and mellow. For varieties, we refer to the nursery catalogues, where the time of ripening and quality of the fruit are generally noted.

CORRESPONDENCE.

ON STEEPING SEED CORN.

Cedar Brook, Plainfield, Essex county, N. J. 27th May, 1837.

J. Buel, Esq.—Dear Sir—Having closed my business in the city of New-York, I last year purchased a farm in this place, about 100 acres of which is very uniform in quality, nearly a smooth gentle declining plain to the south, except where Cedar Brook passes through it from north to south, which is a remarkable stream for its purity, permanency and uniformity of temperature, not freezing when the thermometer is ten degrees below zero. The soil is uniformly a dark brown loam, in some parts mingled with pebble stones, from six to eight inches deep, none too moist; the subsoil is dark yellow and tenacious, from nine to twelve inches deep, with a preponderance of alumina, resting on a loose gravel, several feet in depth. I have thus briefly described the soil, as I think *always ought to be done*, when experiments and facts are stated for public use.

I commenced taking several useful publications on agriculture, none of which I esteem more valuable than the Cultivator. Not getting possession of my farm until late in the season, I did little the past year. To hasten the vegetation of my corn, planted after the middle of May, I endeavored to follow the recommendation of soaking and preparing the seed, and about one-half only germinated. About the first June, I replanted; had a great growth of stalks, but the corn from the latter planting was all cut off by the frost, before it was at maturity. I attributed the failure to a long cold storm, while the grain was in the earth. Having this year about twenty acres that had been twice mowed, and after being seeded with clover and timothy, I spread upon about half, twenty loads of good manure to an acre. It was then well ploughed, rolled and harrowed twice, raising a fine mellow soil. My seed corn, mostly of the Jersey white, was selected with great care, was soaked in water over night, with five spoonsful of tar to a bushel of seed, at about 130° of heat, when the water was applied. In the morning it was drained and sprinkled with ashes and plaster, and generally planted the same day. We commenced the first week in this month, and finished in about eight days, the weather being very fine for the season. At the end of two weeks, not one seed in twenty had germinated, except a few rows planted directly from the cob, which came up well. We planted about half an acre of the large eight rowed Connecticut yellow, about half an acre of the Dutton, half an acre of golden Sioux, and several small pieces of various kinds for trial The Dutton and Sioux have vegetated the best. Where we spread no manure, we added about a spoonful of ashes and plaster to every hill as we planted, and perceive no difference in germinating. We have replanted about four acres with dry seed, and calculate to go over the whole, though probably the crop will be nearly a total failure if we have early frosts.

I have been thus particular in what I have *done*, that others may guard against my mistakes. Being well satisfied that the failure has been owing to the preparation of the seed, as the rows planted unprepared have come up well, and my neighbors planted about the same time, the same kind of seed, on similar land, which has come up remarkably well. I shall be greatly obliged for your free opinion of the cause of my want of success. I am making some experiments on recommendations which are yet to be tested. I am however satisfied that more attention is requisite in description of *location* and *soil*, by those who give recommendations for the public.

I would beg leave to request your correspondents to give their names, the state and place of their residence, that inquiries may be made of them by mail There have been some I should have written to had I known where to address them. I am, with great respect, yours, &c.

DAVID L. DODGE.

Remark.—Our practice, for sixteen years, has been to steep our seed corn in the manner we have recommended, dissolving half a pint of crude salt-petre in the steep—and the seed has never failed to grow—except in one case, where a part of the corn, after steeping, was left exposed a day or two to the sun, by accident. That which was planted immediately from the steep grew well—that which was exposed did not do well.

THE WHITE GRUB.

Dear Sir—Being a constant reader of your useful paper, and do not recollect reading much concerning the destruction of the large white grub with a reddish head. Our county is very much infested with them, to the injury of many of the crops, and are increasing rapidly.

I think some knowledge on the subject ought to be solicited and diffused, and exertions made for their destruction. It appears that the grub changes into the bug every two years, and then deposites its eggs in the earth for their future progeny. This year they will be in the bug, and then an exertion ought to be made, to destroy them, before they deposit their eggs, which may be done in a great measure, by keeping up a steady flame in the fore part of the evening, (for they do not fly more than an hour,) and they will fly from one to two hundred rods to get to it, and are sure to find their end. I witnessed the effect of it in 1835; one of my neighbors made a fire of dry brush, and kept a flame steady for three-quarters of an hour, and it was incredible to witness the number that flew into it. The fire was over one hundred rods from my house, and as soon as the light was visible, the bugs all left thumping at my windows, where they were attracted by the light of the candles, which gave me just reason to believe they went to the fire, and the land has been clear from the grub for the same distance around the fire. I am confident that if farmers would agree, and make fires of some light materials, as brush or old rails, in the fore part of the evening, from one to two hundred rods apart, for two evenings in a week, when the bugs fly, they would destroy the whole race of them, and save the destruction of their crops.

Rutland, Jefferson county, 1837. C. P. KIMBALL.

Remark.—We are not aware that the grub above described, is of any serious injury to crops, not having ever discovered that it preyed upon plants. All insects were created for wise purposes; some, perhaps, to put in requisition the constant vigilance and industry of man—some to prey upon the more destructive families of insects—as the ichneumon upon plant lice. The injury ought to be palpable and serious, before we wage a war of extermination against any class of animated beings, which we have reason to believe were not created but for purposes of good.—*Cond.*

DIRECTIONS FOR MAKING CURRANT WINE.

Our Tennessee correspondent, who communicated the following, says—"We are now using some wine, made according to this recipe, and find it decidedly superior to any foreign wine for the table. The imported wines are all too strong."

Gather your currants when fully ripe; break them well in a tub; press them through a sifter; then strain them through a flannel bag, and measure the juice. Add two gallons of water to one of juice; put three pounds of New-Orleans sugar; stir it till the sugar is quite dissolved. In straining the juice of the currant, use a hair sieve, and not one of wire; then use a close tow linen bag, and afterwards a flannel one, to pass the juice through. The juice must not be permitted to stand over night.—Observe that the cask be sweet and clean, and such as has never been used for beer or cider, and if new, let it be well seasoned. Do not fill your cask too full, otherwise it works out at the bung, which is injurious to the wine—rather make a proportionate quantity over and above, that after drawing off some of the wine, you may have enough to fill up the cask. Lay the bung lightly on the hole to prevent flies, &c. from creeping in. In three or four weeks the bung hole may be stopped up leaving only the vent hole open till it has done working, which is generally the middle or last of October. It may then be racked off if you please, but I think it best to leave it on the lees till spring, and if not wanted for present use, it may be left on the lees for two years without damage.

When you draw off the wine, bore a hole an inch at least from the tap hole, and a little to one side of it, that it may run off clear of the lees.—Some put in spirit, but I do not think it advisable. Do not suffer yourself to be prevailed on to put more than one-third juice, for that would render the wine hard and unpleasant, nor too much sugar, as that would deprive it of its pure vinous taste. It improves by age.

HINTS ON DIET.

Stephentown, March 7, 1837.

Dear Sir—In the present [March] number of the Cultivator, I notice "Hints on Diet," and am rejoiced to see you take up the subject, for I *do believe* that seven-eighths of the diseases which our country is subject to, and that seven-eighths of the premature deaths, originate in the indulgence of the appetite. By overloading "the stomach, fermentation is checked;" disease must and will necessarily follow. People are ignorant of this; few look into this subject. Why is it so? I answer in the words of Adam, "The woman thou gavest me" cooked, and I did eat; they cook so many kinds at once, and are sure to set on the poorest first, and we eat until satisfied with that part, then comes something more tempting, then another dish, and another; in this way, we in almost all cases eat too much, and disease follows. Now, if instead of having these different kinds at one meal, we should take them separately, breakfast on one, and dine on another, it is not probable we should eat too much.

Mothers love their children so well that they kill them with kindness

If they are taken sick by surfeiting, and loathe their food, the mother will say, my dear, you must eat; you cannot live without eating; and the child believes its mother, crams in the food, and sometimes vomiting will succeed, and not unfrequently fever, inflammation and death follow. Napoleon Bonaparte was seldom ever sick, though he was exposed in all climates and to all weathers, sometimes wet and cold day after day; then again near the torrid zone, where the plague raged among his soldiers. In all of his travels, whether by day or night, by land or sea, he says he never had a physician but twice to attend him. When he was sick, it was his practice to fast until the disease had fled. He took care not to eat too much; and this is one reason he was so healthy. Regularity in diet, in sleep, and in labor, should be followed as near as can be, in order to preserve health and happiness. We certainly cannot be happy in this world if deprived of our health, and we should use all means to preserve it.

Your friend and well wisher, A. WOOD, Jr.

CORN BREAD.

The south has been long celebrated for its grateful corn bread, cakes, muffins and homminy. In consequence of an invitation in the Cultivator, a young lady in Tennessee, has kindly sent us the following directions for making these domestic delicacies of the table, for which we respectfully tender her our acknowledgments.

PLAIN CORN BREAD.

Six pints meal, one table-spoonful salt, four pints water; thoroughly mixed with the hand, and baked in oblong rolls about two inches thick. Use as much dough for each roll as can be conveniently shaped in the hand. Many persons use hot water; in winter it is certainly best. The bread is better to be made half an hour or more before it is baked. The oven must be tolerably hot when the dough is put in. All kinds of corn bread require a hotter oven and to be baked quicker than flour.

LIGHT CORN BREAD.

Stir four pints meal into three pints tepid water; add one large tea-spoonful salt; let it rise five or six hours; then stir up with the hand and bake in a brisk oven. Another method is to make mush, and before it grows cold, stir in half a pint of meal. Let it rise and bake as the first.

CORN CAKES.

Six eggs well beaten, one pint milk, one tea-spoonful salt, two pints mush almost cold, two pints meal, and three table-spoonsful melted lard. Grease the oven and put one *large* spoonful of batter in each cake. Do not let them touch in baking.

CORN MUFFINS,

Made in the same way as corn cakes; grease the muffin hoops and heat the oven slightly, before putting in either corn cakes or muffins. A better muffin is made by substituting two pints flour instead of meal,

BEST BATTER CAKES OR MUSH CAKES.

Beat the yolks of eggs very light, add one pint milk, two pints mush almost cold, 1½ pints flour, one tea-spoonful salt, three table-spoonsful melted butter. To be well beaten together. Just before frying them whip the whites to a strong froth, and stir it lightly into the batter. For frying all kinds of batter cakes, use no more lard than is necessary to make them turn well.

MUSH..

Put two pints of water into a pot to boil; then take one pint cold water and mix smoothly into it one pint meal. When the water in the pot boils stir this well into it, and let it boil ten or fifteen minutes, or until it looks clear.

COMMON BATTER CAKES.

Six eggs well beaten, 2½ pints milk, one tea-spoonful salt, stir in three pints meal that has been thrice sifted through a common sifter. Keep the batter well stirred while frying, otherwise the meal will settle at the bottom.

BEATING HOMMINY.

Soak the homminy corn ten minutes in boiling water; then take the corn up and put it into the homminy mortar, and beat it until the husks are all separated from the corn. Once or twice while beating it, take it out of the mortar and fan it; that is, throw up on a tray or bowl so as to allow the husks to fly off. When sufficiently beaten, fan it until all the husks are out.

PREPARING HOMMINY FOR THE TABLE.

It must be thoroughly washed in cold water, rubbing it well with the hands; then washed in the same way in warm water, changing the water several times. Put it into a large pot of cold water, and boil steadily eight or ten hours, keeping it closely covered. Add hot water frequently while boiling, otherwise the homminy will burn and be dark colored.—When homminy beans are used, one pint to a gallon of homminy, to be put in when the homminy is put on. If it is put on the first thing in the morning, and kept briskly boiling, it will he ready for dinner at two o'clock. Season with butter and send it to the table hot.

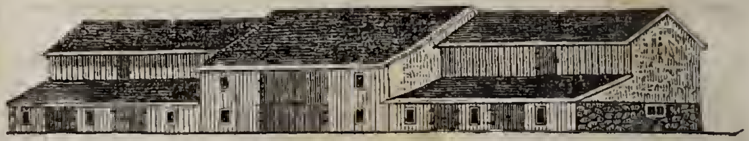
But the usual mode is to boil homminy twice a week, and put it into a wooden or stone vessel, and set it in a cool place to prevent its becoming musty. When wanted for use, take the quantity necessary for breakfast or dinner, and having put a small quantity of lard into an oven, let it become hot; put in the homminy and mash it well, adding some salt; when well heated it is ready for the table. Some persons allow it to bake at the bottom, and turn the crust over the homminy when put on the dish. Be careful to have no smoke under the pot while boiling, or when frying it for the table. Few things require more care or nicety in their preparation than homminy.

(These pints were all measured with the common tin cup.)

SHEEP BARN—RUTA BAGA.

New-Lebanon, *May* 26, 1837.

Dear Sir—As you are engaged in agriculture, and no doubt take an interest in all improvements, I enclose you a sketch of a barn, [fig. 32,]



which I built last season for the accommodation of sheep—141 by 40 feet, with a basement, three sides of which are built of stone laid in mortar, 6½ feet high in the rear and 7½ in front, with a cellar 40 by 16, which will hold about 2,500 bushels roots, which are dropped into it through a trap door from the outer floor. The barn will hold from 80 to 100 tons of hay, besides grain, straw, &c. The basement will conveniently hold 700 sheep; where they are fed with hay, ruta baga, and watered. In cold weather, we close the doors and windows,* and throw them open in mild weather, and is sufficiently warm in March and April, for young lambs. We shear on the centre floor, and have a wool room plastered on the right. Our flock consists of about 1,000 of the finest Saxony sheep, and we have long found it difficult to keep these fine and tender sheep sufficiently warm, and particularly to guard young lambs against the vicissitudes of the weather, even in April.

We think ruta haga are decidedly preferable to any other roots, and raised about three thousand bushels last season. They are as valuable for cattle as for sheep.

The enormous high prices which are demanded for oxen and cows, as well as for butter and cheese, admonish us that the people of this country have run too much into sheep, to the neglect of cattle; which the good sense of the farmers will soon rectify. We have an earnest of this from the number of calves which we see in the pasture of almost every farmer.

I enclose a few samples of our wool.

I am very respectfully yours, &c.

E. TILDEN.

Wilkinson's Cross Roads, Tennessee, May 22d, 1837.

J. Buel—Dear Sir—A few of us are quite busy in trying to extend the circulation of the Cultivator. In it we see no scurrilous abuse—no ill-natured thing said by one rogue against another—no party strife manifested, by persons hunting for place, power and authority. We witness in it none of the mad-cap folly of political gamblers, nor heartless demagogues. We read of no religious fanatic denouncing his honester neighbor, because he will not believe the absurdities and licentious stuff which he proclaims. It is telling us in every page, how to recover from the panic—how to escape the weight of the pressure—how to live without banks, and always to have a surplus revenue of our own. Hence we like it, and are quitting the reading political papers, and soberly returning to the natural business of man. The first business which God put man to do, you know, was to cultivate the soil. This was the first business of all. Abel was a shepherd, or a tender of stock, which in the eye of the Deity, was the second in the list of duties. Cain, after he had killed his stock-raising brother, fled, and became carpenter, for you know he built a city. To till the soil, to raise stock, and to make houses, were the occupations which God put our forefathers at, and I reckon it would have been best, had we, their sons, pursued their calling. I intend getting back to those vocations.

About Nashville, and in the county of Rutherford, we are getting some superior Durham cattle, imported from Mr. Murdock's pasture, and some first rate breeding hogs. I may hereafter say more to you about some of them.

Respectfully,

FRED. E. BECTON.

---

* We doubt the propriety of closing the doors and windows at any time, except during a *driving* snow storm. No animal is more sensitive to foul air than the sheep; and 700 of these animals will soon vitiate the air of the basement story. We think it would be an improvement to have doors or ventilators, on the ends and rear, as well as in front.

If we were to prescribe rules in regard to the management of sheep, they would be something like the following:—1. Give them pure air; 2. feed them well; 3. keep them dry; 4. give them salt often; and 5. graze them in hilly, stony pastures.—*Cond.*

THE CHICKEN.

Norwalk, June 21st, 1837.

J. Buel—Dear Sir—Permit me to make an inquiry or two upon another topic. Is the real manner in which the chick escapes from the shell, in the process of hatching, known to you and the readers of the Cultivator? or is it the generally received opinion, that it is liberated by the efforts of the mother? If the affirmative of the latter question is true, there is a prevalent mistake upon the subject; and although it may seem but a small matter, the real process is exceedingly interesting, and a knowledge of it will be of some practical utility.

Every one accustomed to the management of poultry has probably noticed, that fowls will sit six or eight weeks upon addled eggs, without attempting to break them—that successive nests full of eggs may be given to the same fowl, and that, if the young are taken away, she will continue to sit—that a laying fowl may leave her eggs in the nest of a sitting one, and if the young are taken away as fast as hatched, she will sit on until she has finished—and that a hen, sitting on the eggs of a turkey, or goose, will not attempt to break them at the end of three weeks. But these facts are not consistent with the idea, that at the termination of the period of incubation, the mother sets to work and liberates her own offspring The truth is, that the escape of the chick is by a natural, uniform, and singular method, and by its own efforts; and that, any interference by the mother, or any thing else, will stop the process and destroy its life.

The chick lies in the shell with its feet and tail towards the small end; its neck towards the large end, with its head bent down under the neck, and lodged on one side under the wing of that side, and with the bill projecting up, between the wing and side, parallel with the top of the back. When it has attained a sufficient growth to feel the confinement of the shell, it struggles and forces its bill through it. But the singularity of the arrangement is, that, from the peculiar situation of the head on the side, the chick is turned, by each successive struggle and the resistance of the shell, about one-eighth of an inch round, and every effort breaks a new portion, or rather continues the breakage until, when about three-fourths or more of the shell is broken, *in a direct line round*, the remaining portion gives way, during the next struggle, and it kicks itself out into the nest—leaving the shell, thus divided, adhering by the small portion of the lining membrane, which the bill of the chick has not broken.—Any person who will take the trouble to examine a nest of shells, after the hen has left it with her young, will find them thus divided and thus adhering, appearing as if severed nearly in two, and then broken. There is another singular circumstance connected with this evolution. A portion of the blood of the chick circulates through an opening in its belly, into the lining membrane of the shell, to be exposed to the vivifying influence of the air. If this membrane is torn before the circulation in it is stopped by the vessels being twisted by the evolution in the turning of the chick, it will bleed freely and the chick will die. And if the shell, when partially broken round, is mashed so as to interfere with the turning process, the chick will die unhatched. Not unfrequently it happens, that the chick breaks the shell entirely round, but, owing to the toughness of the lining membrane, it is but partially broken, and in that case, if the chick is not taken out by hand, it will never get out. I have found three eggs out of twelve, after the hen had left the nest, in this predicament.

B.

THE WOOL MARKET.

As clipping time is near at hand, I have thought some remarks on the subject of wool would not be uninteresting to those who are engaged in sheep husbandry. I am largely interested myself, and with a view of learning the actual state of the market, I have just visited many of the manufacturing towns of Connecticut and Massachusetts.

In consequence of the extensive failures or suspensions of many of the large commission houses in New-York, the manufacturers were more or less embarrassed. The losses of some were so great as to cause a failure, while others, witnessing the storm around them, immediately stopped their mills and discharged their hands. The great majority of woollen mills are of this class, who stopped from expediency, more than necessity. They have worked all their wool and finished all their goods, and only wait for a change of times to start their machinery again.

Nearly every mill has on hand the cloths manufactured in the last four months, and they will not be sent to market till the fall sales commence, when fair prices will doubtless be obtained.

The stock of domestic woollen goods in Philadelphia, New-York, or even in the country, is not large. There is no difficulty from an over-supply. It is well known that there will be few or no woollen goods imported this season, and our own manufacturers will have the entire benefit of the market.

The present state of affairs prevents the importation of either wool or woollen goods. The duties are required to be paid in *cash*, when imported, which now amount to almost prohibition. Indeed, since the bursting of the credit-system, as practised by importers, goods will hereafter, from necessity, be imported for cash.

All these things will eventually help our manufacturers, by giving them the market of this country, quite as effectually as by an excessive tariff of duties.

The manufacturers of New-England are by no means broke down or disheartened, but like prudent men, are holding up for a change of times. They will do very little for the next ninety days, but by that time they will nearly all be at work. It is evident there will be no demand for wool till fall, when I see no reason why good prices should not be obtained. If cloths sell well, wool must do the same.

Every man can make his own inference, but my advice to wool growers is, not to dispose of their wool this summer, but by all means keep it till fall. After shearing, place it in a pile, in a clean, dry loft, and cover it over with blankests, and there keep it till business is again resumed. Many will probably sell at once, for the most they can get, and thereby deprive themselves of a better market, later in the season.

Yours, &c. OTSEGO.

June, 1837.

TO DESTORY WORMS—THE GRUB—THE LOCUST BORER.

Windsor, Broome co. N. Y. 25th May, 1837.

J. Buel,—Dear Sir,—If your correspondents, who inquire how to destroy worms in their gardens and fields, will mix strong wood ashes with the surface of their ground, they will be relieved from their depredations. To prevent the destruction of cut worms, it is only necessary to place ashes about the plants which they prey upon—the ashes must, however, always be wet, but the rains and moisture of the earth are usually sufficient, if not, artificial watering must be resorted to—the effect will last several weeks, and the quantity of ashes need not be very large. Dry ashes or lime has no sensible effect, as I have frequently witnessed from numerous experiments. It is true, that some labor and care are necessary, and the application sometimes needs repeating. A seasonable use of ashes will prevent turnips and other roots from being wormy; it is a very good way to sow ashes on field turnips when the seed is sown. The above statements I have verified by five years experience. I *suppose* lime or salt (muriate of soda) as good as ashes for the destruction of vermin.

I intend, hereafter, to send you a communication on the cultivation of the pear and the yellow locust. The borer, so formidable to the latter, is, I believe, invited by a diseased state of the tree; which disease, if it be one, may be entirely avoided. Be that as it may, *it is certain* that the borer may be avoided. Healthy trees are not usually attacked by borers, the apple and some others may be exceptions. The primary cause of the fire blight, so destructive to the pear, must, I believe, be looked for in the vegetable physiology of the tree, and traced to improper cultivation. This idea does not ensure the absence of insects as its immediate cause, for nature, who undoubtedly is an excellent cultivator of her locusts, seldom or never has any borers among them; whereas, when they come under the cultivation of man, they are sometimes eaten up before they are grown up. I once informed you what I deemed a preventive of the fire blight in the pear, and every year since has confirmed me in my opinion.

I am with respect yours, &c. N. BLATCHLY.

Remark.—Our correspondent resides in a district where the locust seems indigenous, and where the borer has probably not yet made much progress. This insect, we have no doubt, is the *cause*, and not the *consequence*, of the disease in the locust.—*Cond.*

DIRECTIONS FOR MAKING CHEESE.

Mr. J. Buel,—Sir,—In the first number of the current volume of the Cultivator, you invite to discussion on the best method for the attainment of certain purposes therein mentioned The subjects proposed I conceive to be highly interesting to every agriculturist, and hope that the facts that may be elicited will prove beneficial to your numerous readers, and promote the purposes for which your useful pages are so eminently calculated. For a considerable number of years my attention has been turned to the dairy, and particularly to the manufacture of that kind of cheese known in market as English imitation. Although this article is in good demand, and its consumption much on the increase, it is not extensively made in this country, nor is the method of making it very generally known. Conceiving that this kind, as much as any other, is embraced in your invitation, I have concluded, in this communication, to give a detailed statement of the whole process, founded strictly on my own practice, and accompanied occasionally with such remarks as I think may be useful to such as are unacquainted with the business. The few following preleminary observations, if attended to, will be of service:

That a dairy may become profitable, special attention to various particulars is absolutely necessary; among the most prominent are the following: That the cows be good milkers, and the milk of good quality; that they be well wintered, so that they may come in in good order; that they come in in the proper time; and that they have abundance of pasture through the milking season.

Cleanliness is absolutely indispensable in the manufacture of good butter or cheese; no vessel or utensil should be used without being washed and properly scalded, from the churn to the butter ladle, or from the cheese tub to the cheese cloth. A strict observance of this rule will greatly enhance the value of the article; and as considerable manipulation is necessary in making that kind of cheese I am about to treat of, consequently the ablution of the hands and arms cannot be too scrupulously attended to

English imitation cheese.—This variety of cheese, as above hinted, is not extensively made in this country, although it is very saleable in the New-York and other markets. Owing to their size and solidity, they are well adapted for a warm climate, hence the call for them from the south. They are much used for ships stores, and as they are not very liable to spoil by age, they are frequently kept until toward the end of the following season, when other varieties become scarce, when they prove a fine, sound, old cheese. They weigh from fifteen to twenty pounds. Their color should be as near as possible to rich grass made butter. In former years they have sold from one to two cents per pound higher than those known by the name of American cheese, and as they lose more in weight, it ought to be so, to afford the manufacturer an equal profit. Yet for the last two years the best American dairies have fully equalled them in price. They sold in the New-York market last fall at eleven cents per pound at wholesale.

Number of cows.—From fifteen to twenty good cows are necessary to make the best quality of this article; with that number, one cheese may be made at every milking through the cheese making season, and three or four each day for five or six weeks during the flush of the milk. To put two milkings to one cheese, which must be done where the number of cows are much smaller, deteriorates it in quality, inasmuch as the oily part of the cream that is collected cannot be converted into curd, and is in too liquid a state to be retained, and consequently will either float off with the whey, or be expressed by the press.* Farther, milk as it comes from the cow has a peculiarly sweet flavor, which it soon loses by standing, and so must be lost to the cheese.

Milking.—The cows should be in the yard and milking commenced at a particular hour every night and morning, say six o'clock; if the time is much varied it injures the cows, and the quantities of milk will not be so regular. The milk is to be carried direct to the cheese tub and carefully strained into it. When the weather is moderate, the milk, as it comes from the cow, is in the proper state for coagulation; but if the weather is very hot, a pan of cold milk, saved for that purpose, may be added; if cool, as much may be warmed as will bring the whole to the proper temperature.

The cheese tub should be large enough to contain seventeen or eighteen pails of milk, and have a cover properly fitted to it.

The rack is laid across the tub to support the strainer, it needs no description.

The strainer should be large enough to allow a pail of milk to be emptied into it without danger of its flying over the edges. Those having fine wove brass wire soldered on the bottom, are most easily kept clean.

Coloring.—(The milk being all in the tub, and having attended carefully to my last remark on cleanliness,) take a piece of annatto, if good, a piece the size of a large pea is enough for a cheese of fifteen or sixteen pounds, spread it on the palm of the left hand, and rub it in the milk with the fingers of the other until it is dissolved.

The rennet, or steep, is now added, and no more must be used than is just necessary to curdle the milk; on this greatly depends the quality and flavor of the cheese. The whole is to be stirred, that the coloring and rennet may be well mixed with the milk, and the cover put on until the coagulation has taken place. It is impossible to make good cheese without good rennet The method in which I have been most successful in obtaining it of the desired quality, is the following: Take the rennet or stomach of a calf, (that of one that has been well fatted and at least fou weeks old is best,) empty it of its contents, rinse it very slightly in cold water, put it on a plate with as much coarse salt as will preserve it, and let it lay for eight or nine days; put splinters of wood across it to keep it spread, and hang up to dry until wanted; it will improve by age. A few days before the steep is wanted, take one quart of soft water, add two handsful of salt, boil and let stand until cold; break your rennet in pieces, put into a jar and add the liquor, in two or three days it will be fit for use; strain, bottle and cork it. A good rennet treated in this way will make from twenty-five to thirty cheeses. And when the strength is ascertained, it is easy to know the proper quantity required.

Breaking curd.—When the coagulation is completed, it is to be broke, that the serous part may be more easily separated, and is done in the following manner: the hand is thrust to the bottom and raised up through the curd, squeezing very gently those pieces that continue to adhere, continuing until the whole has been completely broke. The process is easier done than described, and requires some practice to accomplish it well. If done too hurriedly, the whey will not come off so thin and clear as it will otherwise. It should stand a few minutes to settle, after which the whey is lifted off with as little disturbance to the curd as possible.

Settling the curd.—In performing this part, two or three persons may be engaged with advantage. The open hands of all employed are laid on the curd very lightly, at first shifting them seldom and with care; it will soon begin to harden under the hand, and a gradual increase of pressure becomes necessary. At this stage, if the weather is cold, it is sometimes proper to throw on a quantity of hot whey, to induce a greater degree of tenacity in the curd and accelerate the operation. When it has become sufficiently solid, the curd is to be cut in square pieces of three or four inches each, by running a knife several times through it at right angles, the tub is then raised on one side by placing a block of wood under it and the curd collected in a heap at the upper side of the tub, pressing with the open hands as before is then resumed, and continued until the whey nearly ceases to run off. As the whey that is afterwards collected is preserved for another purpose, that which is now in the tub must be lifted out and passed through a cullender, to collect any detached pieces of the curd.

*To prepare for the vat or hoop.**—The curd is to be cut in the same manner as before, and the hoop placed on the rack over the tub; each person engaged then lifts from three to four pounds into a milk pan or other convenient vessel, putting to their respective quantities a large tea spoonful of fine salt, and one-fourth of a tea spoonful of salt petre, as much of the curd is then grasped between both hands as can be conveniently taken, and with a quick firm squeeze, suffering it to pass through between the hands, is again returned to the vessel, continuing the operation until sufficiently done; it should be as fine as grains of wheat and lively to the touch. If overdone, it will become soft and pappy, and detract from the richness of the cheese; if not done enough, it will not press so well. It is put into the hoop, and the remainder treated in the same way. When the hoop becomes full it must be pressed down with the open hands, which should not be shifted until the cheese becomes solid under them, which it will soon do. It will be more convenient that the last prepared be pressed in the same manner in the vessel before putting it in the hoop, it will prevent it's falling off. When the whole has been pressed until it has become a solid mass, it is turned out of the hoop on a clean cloth, the hoop is rinsed in sweet whey, and the holes, if shut, opened; the cheese is lifted by the cloth and returned to the hoop, the ends of the cloth lapped neatly over the cheese, the follower put on and conveyed to the press.

The white whey that has collected in the tub is to be passed through the cullender, and may be fed to the calves, if there are any rearing, instead of milk, or it may be set away, to cream for whey butter. It is treated exactly like milk intended for that purpose.

The press ought to have a pressure of at least five or six hundred weight. Transverse pieces of wood, of about half an inch thick, should be fastened where the hoop is placed, that the whey may have free vent. The cheese is to remain in the press for twelve hours; it is then taken out and pared if necessary, and as much fine salt rubed on it as will adhere, it is furnished with a clean cloth, reversed in the hoop, and retured to the press. It is treated in the same manner at the end of every twelve hours, until it has been forty-eight hours in press, except that at the last turning it is put in without a cloth, that it may come out smooth. When a new cheese is to be put in, the oldest made must always be placed upppermost. Two presses are necessary for a dairy of twenty cows; there will always be two and frequently three cheeses in each.

Cheese-room.—The most suitable place for the cheese-room is the cellar, if it be dry and airy. It should be impregnable to marauders, such as rats, mice, &c. The floor should be of smooth flat stone, well put together. Two windows are necessary, and it is desirable to have them face to the north and east, as south or west winds, if permitted to blow upon them, is apt to swell the cheeses. The windows should be secured on the out side with wove wire, and the shutters so constructed, that the current of air may be augmented or diminished at pleasure; revolving slats are very convenient. The shelves may be constructed according to the fancy of the owner, and for a dairy of twenty cows should be capable of containing three hundred cheeses.

Management of cheese in the room.—The cheeses are to be turned every day; the window shutters must be closed, and the room darkened through the day, unless in a rainy or damp time, and opened at night. In hot dry weather, the floor may be sprinkled once a day with cold water. If any of the cheeses incline to swell, they are to be placed on the floor until they resume their natural shape. If mites become troublesome, the cheeses and shelves may be brushed off with a dry brush. A blue mould or coat is most desirable, and is to be encouraged.

I have been more minute in my details of this business, knowing the difficulties that beginners are liable to encounter, and after all I have said, it will be found that experience is necessary to constitute the learner an adept in the art. It now remains that I give a short statement of the proceeds of my own dairy for the last season. The prices, it is true, were high; but owing to a combination of circumstances beyond my control, the quantity fell considerably short of an average of preceding years.

---

* This observation may not apply to American and other kinds of cheese; the process in making is materially different, but I am satisfied of its truth as regards the kind under consideration.

* Two very convenient hoops may be made of a half bushel measure, by cutting it in the middle. The bottom should be fastened and perforated with a number of small holes, there should also be holes in the sides near the bottom; both larger and smaller sizes may be occasionally wanted. The followers should fill the hoop neatly, and yield easily to the pressure.

I milked twenty cows, which, owing to the great scarcity of fodder, had been fed for two-thirds of the preceding winter on straw. Toward spring they were fed with good hay, with about 18 cwt. of oil cake,. which cost me seventeen dollars. I commenced making cheese on the fifteenth day of May, and finished on the twelfth of September. I made 250 cheeses averaging fifteen pounds each. Before commencing and during the time of making cheese, I made 400 pounds of butter, the Sabbaths' milk being always used for that purpose. After quiting the cheese I made 550 pounds of butter. I fed 2,000 pounds of pork, chiefly on the whey, and made 112 pounds of whey butter. I have already stated that the price of cheese was eleven cents per pound; mine was carried to market loose, and sustained some damage, in consequence of the boat springing a leak and having to unload her cargo, for which reason one-fourth of a cent per pound was deducted, I must therefore calculate accordingly.

20	calves, averaging $3 each,		$60
400	pounds butter at 20c. per pound,		80
550	" " 28c.	do.	154
3750	" cheese, 10¾c.	do.	403
112	" whey butter, at 12½c.		14
2000	" pork, at 8½c.		170
Add for milk and cream used in family containing 13 persons, say			30
			911
Deduct for first cost of hogs and extra feed,			60
			851

The average of butter to each cow is a fraction over 47 pounds, the average of cheese 187½ pounds. The average amounts to each cow, $42.55.

P. S. As my butter, as well as cheese, stand as fair in market as any other, I may hereafter send you a few remarks on my manner of treatment of that article likewise. J. SMEALLE.

Princetown, Schenectady co.

PRODUCT, &c. OF THE FLAX CROP.

New Berlin, N. Y., June 3, 1837.

J. Buel—Dear Sir—I was somewhat surprised on reading an article on the culture of flax in the April No., 1836, as a statement of the product of Major Kirby's crop of flax. Seven and three quarter tons of dressed flax were represented to have been grown upon six acres of land. This was so palpably at variance with what I had understood the amount of the crop, and with my own experience, that I set it down as an unintentional mistake of your informant.

Were it not evident from perusing an article in the February No. that the delusion was likely to be perpetuated, I should not now fulfil a determination I then made of writing, and I have only to offer in apology my desire to see the Cultivator a vehicle of correct information. I have grown and purchased the crop for manufacturing to some extent for the last two years, and I can state that the average of crops will not vary much from one ton of stem per acre, and this quantity will decrease one-fifth in weight in the process of rotting, and will afford of merchantable flax, for the purpose of manufacturing, from 240 to 320 wt., average, say 275 wt. Ball's patent hemp and flax machine, manufactured at Copenhagen by Doct. S. Allen, is undoubtedly the most approved. Its great merit is found to consist in its giving a greater amount of lint from the raw material, and that too without injuring the fibre of the flax. The expense of rotting and cleaning may be set down at 3c. per lb. or one-third value of the product.

I have been informed, but with what accuracy I would not vouch, that flax grown in the western counties, although yielding abundant crops of seed, affords very little lint. If so, I can only account for it because of its very rapid growth, and consequently drawing a weak harle. Early sown crops are generally superior in yielding the heaviest and strongest fibre.

I am very truly yours,

T. S. KNAP.

Remark.—The seven and three-quarter tons should have been *undressed*, and not *dressed* flax —*Cond.*

SUBSTITUTE FOR THE MULBERRY.

Rome, June, 1837.

Judge Buel—Dear Sir—I take the liberty to enclose herein for your inspection a skein of white sewing silk. The worms from which it was reeled may be fed from a *vegetable* that may be grown in abundance in every section of our country, with the same culture as a carrot, and worth, for the table, about the same price. The discovery of a substitute for the mulberry, for the northern section of the U. S. at least, must be of much moment, as our winters prove very fatal to the mulberry.

This vegetable puts out leaves very early, and is never injured by frosts, has a heavier burthen of leaves than the carrot, and may be cut with a knife, scythe or cradle, with ease, and with little injury to the plant. By repeated trials, at different times, it was ascertained that the worms had a decided preference for this plant over the mulberry, as they would leave the mulberry leaf for these, nor return to the mulberry so long as any leaves of the plant were left. The worms remained healthy, cocoons proved as heavy, reeled as well, and the silk proves as strong and of as good quality, as any I have seen of this country rearing. The skein herewith sent has not gone through the regular process of the Italian purified silk sewings, but has simply been washed in soap suds. This discovery is the result of much and persevering attention on the part of the person who has made it, a farmer of this town, with small means, and needing the benefit which ought to be awarded to public benefactors. He intends making public his discovery and experiments, after having again tested them, and trust to legislative benificence for his reward.

Your ob't serv't, JAY HATHAWAY.

The Italian spring wheat looks remarkably fine. I saw a field yesterday which stood a foot high. 9th June.

[The sample of silk sent us may be seen at the Cultivator office. What the substitute for the mulberry is, is as much a mystery to the Conductor as it is to the reader.]

THE ARBUTUS—TURKISH MODE OF MANAGING SILK WORMS.

Dear Sir—In looking over the pages of a book entitled "*Sketches of Turkey in* 1831 *and* 1832," page 436, I observe the following. You are engaged in a business which would render this notice interesting to you, and if this description and notice is true, vastly interesting to this country. It is for these reasons I take the liberty to call your attention to it.

The author says, " Here too seemed to flourish the strawberry arbutus, (A. unedo,) which now seemed to offer its luscious scarlet fruit to the tired traveller, and bent over the road side under the weight of its snowy blossoms.

It would be meritorious to introduce this beautiful shrub on our own hill sides. It appears to thrive on a barren soil; it might advantageously occupy the place of our formal and solitary mullien, and would contrast beautifully with our showy kalmias. In Dalmatia, large quantities of sugar and brandy are obtained from this fruit. It is only about five years since this manufacture has been attempted; and I am informed that already more than eight thousand barrels of brandy are annually produced. One thousand pounds of this fruit will give a barrel of spirit, and by the ordinary process, twenty pounds of fruit will furnish between four and five pounds of sugar, and a highly aromatic syrup.

This shrub is said to be a certain bearer, every year equally well. Its capacity to produce sugar is better than either cane or the beet, or any other known plant. I should think a cargo of the plants could be sold, if any one would import them."

And while I am making extracts from this author, I will furnish you with one relating to rearing and feeding silk worms, that I am persuaded describes a preferable method to that in common use in this country.

Silk worms, like every species of caterpillar that feed on the leaves of trees or plants, are led by instinct to be suspended on branches, and not to lie on a plain surface, and therefore must enjoy more health under that form of feeding than when made to feed on leaves lying on a level surface.

He says, " The eggs are spread upon linen clothes, or kept under the arms, or in the bosom, until hatched, which take place in a few days The room is then strewed with branches of the mulberry; first feeding them with the tenderest leaves, and as they grow older they continue to add branches every day until they reach nearly to the top of the room. In the course of ten or twelve days they become torpid, or fall asleep, and continue in this state three or four days; they then awake, and continue to eat and sleep alternately for about six weeks, when they begin to climb. Dry oak branches properly trimmed and prepared for the purpose are then set upright on the pile, they ascend these and commence making their cocoons "

You will, perhaps, confer a favor on the Poughkeepsie Silk Company by furnishing them with the above information: as that rich company have had $200.000 invested for two years, and have not yet, I believe, produced any cocoons; perhaps they have in some way erred in the management of the silk worms. AGRICOLA.

P. S. If any confidence is to be placed in the article respecting *arbutus*, and I do not know why confidence should not be given to it; if the author is the person I have supposed, he is highly respectable, that article is very important. It is certain, however, that this species of arbutus is different from any variety I have known. At any rate the plants should be obtained at any expense. A.

Remarks.—The arbutus unido is also indigenous to Spain, where sugar and spirits have been made from the leaves, and also in some parts of Ireland. It is also in our nurseries, and esteemed a highly ornamental plant. The arbutus uvaurgi, (bear-berry, or strawberry tree,) is indigenous to our country, both red and white fruited; they are both abundant bearers, and beautiful shrubs, but we have not learnt that their berries have been converted to any useful purpose.—*Cond.*

CURE FOR THE SCOWERS IN YOUNG ANIMALS.

Give the animal a pint of shelled wheat two or three times a day. If a sucking colt, give to the dam at the same rate.

Flemingsburgh, Ky. June 1. G. W. FORDMAN.

EXTRACTS.

MANAGEMENT OF A CLAY FARM.

It is contended, in Britain as well as in America, that stiff clay soils, at least, require the process of summer fallowing, every few years, to clean and pulverize them, and to fit them for the growth of grain. This requires the loss of one crop, and the expense of two or three ploughings. It will be seen from the following, that summer fallows have been dispensed with upon clays, and cross ploughings superseded; and that the profits of the farm have been thereby doubled. The practice of Mr. Greg, as stated below, cannot fail of affording useful hints to the managers of clay farms; and his mode of forming ridges, to keep his lands dry, we particularly recommend to the notice of farmers, who are troubled with a redundancy of water, in the spring, in consequence of having a flat surface, or a retentive soil or subsoil. For the grubber, or scarifier, we can confidently recommend Concklin's Press Harrow, or the grubber or scarifier may readily be constructed here.

GREG'S SYSTEM.

The farm of Coles, near Buntingford, in Hertfordshire, consists of 240 acres of arable land, which is described as "a very tenacious clay, in some places mixed up with calcareous earth, which causes it to bind at top after heavy rain;" and was formerly worked nearly under a three-course system of summer fallow, white corn, and pulse, or clover. Turnips were seldom sown, as the difficulty of feeding or carting them off was found to be injurious to the succeeding crop; and, consequently, only a small flock of 80 ewes or 140 wethers was kept, which was constantly folded during the summer. Upon this, and the observations regarding the disadvantages attending the similar plans of his neighbors, it is unnecessary that we should here offer any remark, for we know that they have been, in many instances improved, and our more immediate object is to state the system afterwards adopted by Mr. Greg, and since followed by his nephew, during upwards of twenty years.

Having, as he tells us, "established in his mind, as a general principle, that fertility was to be derived from pulverizing the soil, clearing it from water, and keeping it clean, he proceeded to inquire how those objects were to be obtained at the least expense; and he found that the best method to promote them was to reverse the whole system of the former cultivation." Accordingly, instead of ploughing four or five times only in summer and spring, and fallowing every third year, he formed the determination "to plough only once for a crop; to plough only in winter; never to fallow the land in summer; to practise the row-culture, and to use the horse-hoe." The mode in which he carried his plan into execution was as follows.

He divided the farm as nearly as possible into six equal parts, which are cultivated in a six-course shift, consisting of turnips; barley or oats, clover, standing two years; peas or beans, upon the ley; and lastly, wheat. The ground is marked out by a drill into ridges of five and a half feet in width, intersected by furrows of ten inches wide; thus leaving only fifty-six inches for each land, which is worked by a Suffolk swing plough, formed upon a construction to cut a perfect trench of seven inches deep, and requiring four bouts to complete the ridge, which is made sufficiently convex to describe an inclined plane of three inches from the crown to each furrow. Thus water is prevented from remaining upon the land intended to be cropped, by being drawn into the ten-inch furrow, which is carried two inches deeper; the horses never tread but in a furrow; and by the soundness of this ploughing Mr. G. states, that "when effected in the autumn or before Christmas, a perfect friability is obtained in the tilth by the influence of the frost during the winter, and the surface water may be as effectually got rid of as by under-draining.

As soon as the harvest is completed, the wheat-stubbles are haulmed, and the lands are marked out and ploughed one bout: dung is then ploughed in to the amount of ten loads per acre, and three bushels of winter tares with a bushel and a half of winter barley are sown, to precede turnips, to the extent of about half the ground intended for that crop, which, in common seasons, it does not impede, as the tares are cut upon a moist furrow for the turnip sowing.

The tare sowing being finished, the bean and pea stubbles are prepared for wheat; which is a difficult operation on heavy land, when the object is to get the seed early into the ground. The labor which they require from the plough, roll, and harrow, was so great as to induce Mr. Greg to use a powerful grubber, or scarifier, of a form which covers an entire land; and it performed so well that he has since continued to use it instead of the plough, as he found that he could thus sow forty acres of wheat in a very few days, regardless of weather, and at a sixth part of the expense.

Having sown the wheat, the remainder of the land intended for turnips is ploughed and dunged. The ploughing is also performed for peas and beans; and it is desirable that these operations should be completed before Christmas. As soon as the season turns, the land which was ley, and intended for beans and peas, is scarified; and when the growing weather commences, the beans are drilled at fifteen inches for the convenience of horse-hoeing. The peas are next drilled; but as these, by falling over, preclude the possibility of hoeing them more than twice, they are sown at intervals of twelve inches.

As the ground is cleared of turnips, it is ploughed into lands. In the spring, the barley is drilled in rows of eight inches—not leaving any space for furrow—and the clover and rye-grass is sown up, and then across the lands.

As soon in May as the weather permits, and the sun is sufficiently powerful to kill weeds, the scarifier is set to work, succeeded by a strong harrow; and having by these operations obtained cleanliness, the first favorable weather is made use of to sow Swedish turnips; or, should they fail, they are succeeded by white turnips, and in the event of a further miscarriage, coleseed is sown. With these, and the assistance of about ten loads of clover, and ten weeks' run on pasture in bad weather, 500 sheep are now kept on the farm, but lie enclosed at night in a spacious and well-littered yard. The fodder produced by straw and clover hay supports from forty to fifty head of cattle, and nine working horses are kept, which are soiled during the entire summer: thus so large a quantity of dung is made that no manure is purchased.

In this manner 200 acres are ploughed between harvest and Christmas, besides the cartage of dung and other odd jobs on the farm; but this is easily performed with the aid of the grubber, and the land being entirely ploughed in the winter, there is only the sowing of Lent corn to execute in the spring: the horses are therefore put upon green food, by which a considerable saving is made in the consumption of corn. Many other details of management are given in Mr. Greg's pamphlet, which is brief and well worthy of attention, but which we refrain from enumerating, as we only meant to call attention to the extraordinary statement which it contains of such a system of culture having been so successfully pursued upon land of that nature, as to yield an average, during six years, of the following crops, namely:

	Per acre.	
Wheat,	25	bushels.
Barley,	40	"
Beans,	35	"
Peas,	30	"
Clover, twice cut,	2	tons.

thus, after the deduction of rent and the interest of 2,500*l.* capital, presenting, upon an average of six years, a profit of 671*l.* 3*s.*, or 2*l.* 15*s.* 11*d.* per acre, and a result in favor of his mode of cultivation of no less than *an annual difference amounting to* 638*l.* 13*s.*

Of the accuracy of the minute account thus furnished by Mr. Greg, we have no reason to doubt, though we confess ourselves somewhat sceptical regarding the justice of the conclusions which he has drawn respecting the superiority of his own plans over those of his neighbors; for every man, however high his honor and impartiality, is yet unconsciously biassed in favor of any pursuit of his own, and no farmer could live upon the profit which he has assumed as that of cultivation under the old plan. On a subject of such vital importance to agriculture as that of the fallow system, we indeed deemed it prudent to apply to the present Mr. Greg for further information, which he readily afforded; and, from recent personal communication and correspondence, we are assured by him, "that his uncle's system is still pursued upon his farm with the best effect; as is evinced by the clean condition of the land, the heavy crops produced, and the quantities of stock maintained. The only alteration of importance made in his mode of cultivation subsequent to the publication of his pamphlet, was the substitution of a seven years' course, in place of that of six years, by which he obtained two crops of wheat—one on the clover ley, and another after the beans and peas. The annual course of cropping in the several years now, therefore, stands thus—

1. Turnips.
2. Barley.
3. and 4. Clover.
5. Wheat.
6. Beans and Peas.
7. Wheat.

No material alteration has been made in the implements; nor was any fallow permitted so long as the late Mr. Greg's health allowed his superintendence of the farm; but the bailiff now *occasionally fallows a field of the heaviest land:* this, however, is only resorted to when the land sown with turnips has not been prepared in time for the barley crop, and only averages about 16 acres a year out of 250."—*Br. Husb.*

ENTOMOLOGY,

Is the science which treats of insects—of their history, their habits and appearance. No study is more interesting to the farmer than that of the insects which prey upon and destroy his crops. When acquainted with their species and their habits, he is qualified to guard against their depredations. We gave in our last some interesting facts in regard to the *Cut-worm*, from J. E. Muse, which we copied from the Farmers' Register. We now give, from the same pen, a description of the *Curculio*, a large family of insects, which destroy our fruits, and prey upon our crops, with suggestions for preventing their ravages.

Another insect, the "*curculio*," of which there are nearly one hundred species, belonging also to the *coleopterous* order, commands, from its universal ravages, upon both the farmer and the fruiterer, the attention of every member of the community, who has it in his power to contribute, in the smallest measure, to the destruction of this ruthless foe to the wealth and luxury of man; which frustrates, by its concealed and wily movements, the most rational and well founded plans, executed by the most ardent and efficient energies of the human mind and body. Are we not inclined to exclaim, with the moral and philosophical Seneca, "*Natura quam te colimus inventi quoque.*" How repugnant to the proud feelings of man, to stoop to combat with this insignificant animalcule? How resistless are the ordinances of nature, which compel us, by acts so humiliating, to admire and adore that complex creation, whereby the great architect has seen fit to enforce them!

I have made experiments on the *larvæ* of several species of *curculiones*, and have found the parents so nearly similar in *habitat*, metamorphoses, and most other circumstances, that one description will suffice for their whole history; at least of those which I have examined; and the only mark of idiocracy in the tribes which I have observed, consist in their choice of a *nidus;* selecting, from their peculiarities in this respect alone, the cherry, the plum or the grain of corn, as their instinctive or innate propensities might incline them.

In a transparent bottle containing some earth, I deposited several cherries, in which were the *larvæ* of the *curculio*, that infest that fruit; in a few weeks, or rather as soon as the pulp of the fruit was consumed, which was at different periods, they retreated into the earth, where upon examination some time after, I found they had assumed the state of *chrysalis*, which shortly resulted in that of the *imago* or parent; the wings of the insects were not sufficient to accomplish a flight, but merely to assist its ascent of the body of a tree; from which circumstances, I was led to the following reflections and experiments to test their correctness:

That the remedy must be such as would act, physically, to wit—to interrupt the metamorphoses, by preventing the descent of the *larvæ* into the earth; to expose to the weather, the *pupa*, after its descent; or to intercept in its ascent of the body of the tree, the parent insect; or chemically—by substances, known to be generally deleterious to that class of animals.

The fruit being the *nidus* of the *ovum*, and the earth the *habitat*, in which it is brought to maturity and makes its abode, and the *larva*, from its soft and delicate structure, incapable of travelling, or sustaining exposure; when the fruit containing the *larva* has fallen and is rotted and consumed by the insect, the *larva must* descend, by the most direct route from its original depository, the fruit, into the earth, its permanent abode, there to undergo the metamorphoses, which will bring it to maturity, and fit it for a new series of depredations, which is so secretly performed, that though myriads are employed, they are never detected in executing their work of destruction, the deposite of their *ova*. Hence I concluded, that one of the most effectual preventives, would be paving with brick, stone, shells, or some other hard substance, impervious to the soft *larva*, a circular space round the fruit tree, as extensive as the fall of the fruit; by which it would be interrupted in its descent in the earth, and consequently perish; or that it might be accomplished, by turning up the earth under the tree to the same extent, and thereby exposing to the inclemency of the weather, the tender *pupa*, of which two methods, the former is to be preferred; because thereby you arrest the passage of the *larva* to maturity, and necesssarily destroy it. The latter method, if not performed in time, may allow the perfection of the *imago*, and in this state it is unquestionably more hardy and capable of providing another habitation, as secure and comfortable as that of its first election. And by the experiments which I have made, its descent and maturity are at uncertain and unequal periods, which would make an insuperable difficulty, in point of time, for performing the operation; if before the descent, it would necessarily be useless; if after the maturity, equally so, for reasons given.

This view of the subject, has led me, repeatedly, to both experiments, which I have fairly and impartially made without the influence of any prejudice, which it might be presumed, my reasoning had connected with, or in favor of the former; the result was, the fruit with which I made the experiment that had been destroyed by *curculiones*, for many years, were in all cases, when I paved or shelled, entirely exempt; in two cases only, when the earth under the tree was turned up, at different seasons, the fruit escaped injury, but from the number that failed, I was inclined to ascribe these two to causes accidental and extrinsic.

The third method proposed, viz: to intercept the parent in its ascent of the body of the tree, by various obstacles which the mind will readily suggest, and thereby prevent its deposite of *ova*, though I have made no experiments upon it, I conceive to be rational, and easily accomplished, and with those species of *curculiones*, of which there are many, whose wings do not admit of flight, but assist them only in climbing, it would undoubtedly be effected.

The fourth remedy which I propose, of a chemical nature, I have made but partial experiments to establish, such as are not yet satisfactory or conclusive; when finished, it will give me pleasure to report them, if the result be successful, by a fair and candid detail of facts.

I fear, I have already trespassed on your patience, and will venture merely to notice the parent of a singular *larva*, which some years ago, very generally, throughout the state, as you no doubt remember, threatened to exterminate the whole vegetable creation, as far as it travelled; in whole districts, not a solitary blade of wheat, oats, or rye, nor a remnant escaped its voracious appetite, and the grass was swept, in this march, as if by a scorching fire. So formidable were the destructive multitudes, that fosses, abbatis, and parapets were constructed, to repel their advances, and the ditches were filled with their dead bodies. I deposited in bottles, with earth, several of these *larvæ;* they shortly went into *chrysalis*, and came out a fly of the *lepidopterous* order, precisely like the candle-fly, in all respects. This result, I report, because numerous as they were, and as much alarm as they occasioned, I have never seen a notice of a similar experiment; and it may, in case of a return of these hosts of enemies, afford a clew to their destruction. We at least are not averse to know something of an enemy, which has, and may again assail us with more disastrous ravages.

If, sir, the present communication shall have the effect of inciting to inquiry, on these interesting subjects, the enterprising and intelligent farmer—if the plan of research which I have ventured to suggest, shall afford him any assistance—if I have added one ray of light, whereby more may be obtained—my purpose is answered, and my most sanguine expectations fulfilled.

I have the honor to be, sir, your obedient servent,

JOS. E. MUSE.

[*From the Farmers' Cabinet.*]

THE GENERAL HABITS OF INSECTS.

It is a singular circumstance in the history of the insect race, that they are destined, during the transient period of their existence, to appear under three very different forms, viz: the larva, or caterpillar; the chrysalis, nymph or pupa, and the perfect insect. A knowledge of these several stages, or forms of insect life, is indispensable to an understanding of their history.

The silk-worm affords a familiar instance of those great events which characterize the lives of most insects. The egg, now lying in my drawer, when the proper season arrives, will produce a *larva*, or caterpillar. After feeding for a few weeks, this worm will have completed its first period of existence, and must prepare for the coming change. Having found a convenient corner, it first spins itself up in a ball, or cocoon of silk.—When its domicil is finished, it soon changes to a pupa. The caterpillar, hitherto three inches long, strips off its skin, contracts into an oval form, about one-third of its former dimensions; the surface is now white, smooth and soft, presenting very feeble traces of the included insect. The outside soon changes to a yellowish brown color, becomes more dry and resisting, and the surface is now figured with elevated lines, which mark the situation of the body and limbs of the more perfect animal, which is soon to be produced. In a word, the *chrysalis* or *pupa* is completely formed. The pupa state continues from two to three weeks, when the *perfect insect* bursts the flimsy envelope, which had bound it, opens a passage through its silken tenement, and appears a perfect winged insect, or moth. In this state it does not eat. It moves only in quest of its mate. The only passion it feels, the only care it exercises, is, to provide itself with a successor—and, having done so, it dies.

The changes which I have described, are called the *metamorphosis or transformation of insects*. All insects, however, do not undergo these changes. Some of the *wingless species* retain through life, the form in which they issue from the egg. These are comparatively few in number. Others are hatched with all the parts of a perfect animal, except the wings. The pupa is distinguished from the larva, by mere rudiments of wings; and these become fully developed in the more perfect state. Example: gras-hoppers, locusts, &c. Insects of this sort are said to undergo a *demi-metamorphosis*, or half transformation.

I will close this essay with a few remarks on the different stages of insect life.

LARVA OF INSECTS.

As comparatively few insects feed their young, or even lay up food for their sustenance, they are instinctively led to deposit their eggs in situations where the young animals will most easily procure food suited to their nature. The same instinctive care leads them to seek places where the eggs will be protected against the destructive contingencies of the changing seasons. Thus insects whose larva feed on particular plants, generally select those plants as a deposit for their eggs. If the eggs are intended to hatch the present season, they are generally placed on the leaves of the plant. Example: the stinking bug which inhabits the squash and pumpkin. Others, which are intended to endure the winter in the egg state, are placed on more permanent parts. Example: the tent caterpillar, which infests our fruit trees. Its eggs are deposited in a dense cluster, around the extremity of a branch.

Numerous insects pass the larva state in the water. The eggs of these are deposited immediately in the water, or on plants, &c. along its margin. Example: the *musquito* and *dragon fly*.

Carrion flies deposit their eggs in putrid carcasses, the proper food for the maggot. Yet, even instinct may be beguiled by the senses. The carrion fly is often led, by the smell, to deposit its eggs in decaying mushrooms; and they may even be seen collected upon the stinking blossoms of the carrion flower, *smilax herbacea*.

The *bott fly* unerringly selects such parts of the horse as allow its eggs to be licked off by the animal—whence, they find a ready passage into the stomach, where they complete the first period of their murderous existence.

Led by the same instinct, the *ichneumon fly* deposits its eggs in the body of a living caterpillar, which, after feeding the hungry parasites with its own body, falls at last, a prey to their voracity.

Many species of insects are only preserved during the winter, in the egg state.

PUPA OF INSECTS.

The insect having completed its larva state, seeks a situation to pass the next succeeding period, according to its peculiar nature. Many, especially those of the *moth tribe*, spin for themselves a silken dormitory. Others, as the larva of *butterflies*, attach themselves to the side of a wall, fence, &c. and pass into the pupa state without any other than their own proper covering.

Many larvæ bury themselves in the earth, where they form a cell adapted to their purpose. In some of these, the pupa state is of short continuance—in others, it endures for the winter season. Of this last, the *tobacco worm* is an example.

Many species are only found during the winter season, in the pupa state.

PERFECT STATE.

The last state of insect existence—the state of perfection—the only state in which the being can reproduce its kind—like the preceding stages, is subject to great variety of duration. Some never eat in the perfect state; they only propagate and die. Others, feed for a time, but seem to have no other object in living, than to await the proper period of reproduction.

Many insects only survive the winter, in the perfect state.

There is, in general, much uniformity in the duration of the periods and changes of all the individuals of the same species.

The egg deposited in the fall, may hatch in the spring, pass its several periods during summer, and in turn, lay other eggs in the proper season. Example: *tent caterpillar*.

The egg deposited in summer, may hatch in the fall, pass the winter in the larva state, perfect its changes in the spring, and deposit its eggs the ensuing summer; these hatch, and the larvæ remain the next winter.—Example: *peach insect*.

An insect having passed the winter in the pupa state, emerges in the spring, a perfect being—deposits its eggs, which hatch, perfect themselves and in the fall pass into the pupa state to spend the ensuing winter. Example: *tobacco worm*.

The perfect insect may survive the winter—lay its eggs in the spring—these hatch, and pass their several changes during the summer, ready to pass the succeeding winter in the perfect state. Example: *wasps*

Others, less regular in their changes, seem to pay no further regard to season, than what severity compels them to do. At whatever stage of life winter overtakes them, they still seem capable of its endurance.

Still others, whose periodical changes are of shorter duration, may reproduce their kind several times in the year.

New Garden, 3d mo. 8th, 1837.

AMERICAN INSTITUTE.

At a meeting of the American Institute of the city of New-York, held at Clinton Hall, in said city, on the 18th day of May, 1837, it was

Resolved, 1st. That the present condition of our commercial community generally, is that of the most painful embarrassment, and that the distress is rapidly extending to all the other occupations and departments of productive industry, and that thousands of our most industrious and useful citizens have been dismissed by their employers, and their wages, the sole reliance for their daily food, their clothing and habitations, have within a few days been entirely cut off.

2d. That it is of vital importance, that the causes of this wide-spread distress should be early and fully understood, so that remedies, as far as practicable, may be provided for existing evils, and preventives to guard against future evils.

3d. That in the opinion of this institute, the multitude of discordant views promulgated, in relation to the causes of our present disastrous condition, have led to popular errors, that have in a measure turned the public mind from the accumulating debt in favor of foreign nations, which the repeal of countervailing protective duties has swelled against us, which is now pressing on our banks, and incapacitating them from administering relief to their suffering customers.

4th. That the only way to correct the public mind, and restore confidence, regularity and prosperity, is by the dissemination of correct knowledge among the people, as to the prominent causes of our embarrassment, and by producing a general concert of action in applying suitable remedies.

5th. *It was also Resolved*, That a general convention of representatives from all the productive portions of our country, without distinction of parties, for the purpose of a full and candid exchange of sentiments, and a thorough investigation of cause and effect, and concert in action, would greatly conduce to a favorable state of things, and, it is hoped, hereafter may prevent the recurrence of those evils with which we are now visited; and that it be recommended, that the said convention be held at Philadelphia, in the state of Pennsylvania, on the first Tuesday of August, 1837, at 10 o'clock, A. M. and that it consist of business men, selected from the productive classes, and that they continue, by adjournment, to meet until the desired object be attained.

6th. *It was further Resolved*, That, as the American Institute was incorporated to encourage agriculture, commerce, manufactures and the arts, in this state and the United States, it is peculiarly appropriate, that it should recommend and forward such measures as are calculated to advance the great interests of industry, and produce a sound and healthy state of things; and especially on occasions like the present, when the banks acknowledge their inability to supply the requisite circulating medium, and every occupation is experiencing the most intense suffering.

7th. *It was finally Resolved*, That, in order to render this convention effective, and procure a full representation of business men, delegates be invited from all the states—the cotton growing as well as the grain growing, manufacturing and commercial—from cities, counties, towns and agricultural societies, incorporated manufacturing and mechanic associations, as well as rail-road and canal companies, and that a committee be appointed on behalf of this institute, to consult with the friends of national industry, and solicit the concurrence of all those friendly to the foregoing objects; and that meetings be held at an early day, to elect delegates to respond to this recommendation; and that suitable papers be prepared and published, in order to give publicity to the convention and its objects, and to impress on all interested the necessity of general attendance, concert, and co-operation.

JAMES TALLMADGE, *President*.
EDWIN WILLIAMS, *Recording Secretary*.
T. B. WAKEMAN, *Corresponding Secretary*.

OUTLINE OF THE FIRST PRINCIPLES OF HORTICULTURE.

BY JOHN LINDLEY, F. R. S., &c. &c.

STEM—(*Continued from page* 75.)

61. Some stems are developed under ground, such as the tubers of the potato and the cormus of the crocus; but they are known from roots by the presence of leaves, and regular leaf-buds upon their surface.

62. Stems increase in diameter in two ways.

63. Either by the addition of new matter to the outside of the wood and the inside of the bark; when they are *exogenous*; ex. oak.

64. Or by the addition of new matter to their inside; when they are *endogenous*; ex. cane.

65. In exogenous stems, the central portion, which is harder and darker than that at the circumference, is called *heart-wood*; while the exterior, which is softer and lighter, is called *alburnum* or *sap-wood*.

66. The inside of the bark of such stems has also the technical name of *liber*.

67. The heartwood was, when young, alburnum, and afterwards changed its nature, by becoming the receptacle of certain secretions peculiar to the species.

68. Hence the greater durability of heart-wood than of sap-wood.—While the latter is newly formed empty tissue, almost as perishable as bark itself, the former is protected against destruction by the introduction of secretions that become solid matter, which is often insoluble in water, and never permeable to air.

69. The secretions by which heart-wood is solidified are prepared in the leaves, whence they are sent downwards through the bark, and from the bark communicated to the central part of the stem.

70. The channels through which this communication takes place are called *medullary rays*, or *silver grain*.

71. Medullary rays are plates of cellular tissue, in a very compressed state, passing from the pith into the bark.

72. The wood itself is composed of tubes consisting of woody fibre and vascular tissue, imbedded longitudinally in cellular substance.

73. This cellular substance only developes horizontally; and it is to it that the peculiar character of different kinds of wood is chiefly due.

74. For this reason the wood of the stock of a grafted plant will never become like that of its scion, although as will be hereafter seen (IV.) the woody matter of the stock must all originate in the scion.

75. The stem of an exogenous plant may therefore be compared to a piece of linen, of which the weft is composed of cellular tissue, and the warp of fibrous and vascular tissue.

76. In the spring and autumn a viscid substance is secreted between the wood and the liber, called the *cambium*.

77. This cambium appears to be the matter out of which the cellular horizontal substance of the stem is organized.

78. In endogenous stems the portion at the circumference is harder than that in the centre; and there is no separable bark

79. Their stems consist of bundles of woody matter, imbedded in cellular tissue, and composed of vascular tissue surrounded by woody fibre.

80. The stem is not only the depository of the peculiar secretions of species (67) but it is also the medium through which the sap flows in its passage from the roots into the leaves.

81. In exogenous stems (63.) it certainly rises through the alburnum, and descends through the bark.

82. In endogenous stems (64.) it probably rises through the bundles of wood, and descends through the cellular substance; but this is uncertain.

83. Stems have the power of propagating an individual only by means of their leaf-buds. If destitute of leaf-buds, they have no power of multiplication, except fortuitously.

IV. LEAF-BUDS.

84. Leaf-buds are rudiments of branches, enclosed within scales, which are imperfectly formed leaves.

85. All the leaf-buds upon the same branch are constitutionally and anatomically the same.

86 They are of two kinds; viz. *regular* or *normal* and *adventitious* or *latent*, (119.)

87. Regular leaf-buds are formed at the axillæ of leaves.

88. They are organs capable of propagating the individual from which they originate.

89. They are at first nourished by the fluid lying in the pith, but finally establish for themselves a communication with the soil by the woody matter which they send downwards.

90. Their force of development will be in proportion to their nourishment; and, consequently, when it is wished to procure a young shoot of unusual vigor, all other shoots in the vicinity are prevented growing, so as to accumulate for one shoot only all the food that would otherwise have been consumed by several.

91. Cutting back to a few eyes is an operation in pruning to produce the same effect, by directing the sap, as it ascends, into two or three buds only, instead of allowing it to expend itself upon all the others which are cut away.

92. When leaf-buds grow, they develope in three directions; the one horizontal, the other upward, and the third downward.

93. The horizontal development is confined to the cellular system of the bark, pith, and medullary rays.

94. The upward and downward developments are confined to the woody fibre and vascular tissue.

95. In this respect they resemble seeds; from which they differ physiologically in propagating the individual, while seeds can only propagate the species.

96. When they disarticulate from the stem that bears them, they are called *bulbs*.

97. In some plants, a bud, when separated from its stem, will grow and form a new plant if placed in circumstances favorable to the preservation of its vital powers.

98. But this property seems confined to plants having a firm, woody, perennial stem.

99. Such buds, when detached from their parent stem, send roots downwards and a stem upwards.

100. But if the buds are not separated from the plant to which they belong, the matter they send downwards becomes wood and liber, (66.) and the stems they send upwards become branches. Hence it is said that wood and liber are formed by the roots of leaf-buds.

101. If no leaf-buds are called into action, there will be no addition of wood: and consequently, the destruction or absence of leaf-buds is accompanied by the absence of wood: as is proved by a shoot, the upper buds of which are destroyed and the lower allowed to develope. The lower part of the shoot will increase in diameter: the upper will remain of its original dimensions.

102. The quantity of wood, therefore, depends upon the quantity of leaf-buds that develope.

103. It is of the greatest importance to bear this in mind in pruning timber trees: for excessive pruning must necessarily be injurious to the quantity of produce.

104. If a cutting with a leaf-bud on it be placed in circumstances fitted to the development of the latter, it will grow and become a new plant.

105. If this happens when the cutting is inserted in the earth, the new plant is said by gardeners, *to be upon its own bottom*

106. But if it happens when the cutting is applied to the dissevered end of another individual, called *a stock*. the roots are insinuated into the tissue of the stock, and a plant is said to *be grafted*, the cutting being called a *scion*.

107. There is, therefore, little difference between cuttings and scions, except that the former root into the earth, the latter into another plant.

108. But if a cutting of the same plant without a leaf-bud upon it be placed in the same circumstances, it will not grow but will die.

109. Unless its vital powers are sufficient to enable it to develope an adventitious leaf-bud, (119)

110. A leaf-bud separated from the stem will also become a new individual, if its vital energy is sufficiently powerful.

111. And this. whether it is planted in earth, into which it roots, like a cutting or in a new individual to which it adheres and grows like a scion. In the former case it is called *an eye*, in the latter a *bud*.

112. Every leaf-bud has, therefore, its own distinct system of life, and of growth.

113. And as all the leaf-buds of an individual are exactly alike, it follows that a plant is a collection of a great number of distinct identical systems of life, and consequently a compound individual.

114. Regular leaf-buds being generated in the axillæ of the leaves, it is there that they are always to be sought.

115. And if they cannot be discovered by ocular inspection, it may nevertheless be always inferred with confidence that they exist in such situations, and may possibly be called from their dormant state into life.

116. Hence, wherever the scar of a leaf or the remains of a leaf, can be discovered, there it is to be understood that the rudiments exist of a system which of life may be, by favorable circumstances, called into action.

117. Hence, all parts upon which leaves have ever grown may be made use of for purposes of propagation.

118. From these considerations it appears that the most direct analogy between the animal and vegetable kingdoms is with the polypes of the former.

119. Adventitious leaf-buds are in all respects like regular leaf-buds, except that they are not formed at the axillæ of leaves, but develope occasionally from all and any parts of a plant.

120. They are occasionally produced by roots, by solid wood, or even by leaves and flowers.

121. Hence roots, solid wood, or even leaves and flowers may be used as means of propagation.

122. But as the development of adventitious buds is extremely uncertain, such means of propagation can never be calculated on; and form no part of the *science* of cultivation.

123. The cause of the formation of adventitious leaf-buds is unknown.

124. From certain experiments it appears that they may be generated by sap in a state of great accumulation and activity.

125. Consequently, whatever tends to the accumulation of sap in an active state may be expected to be conducive to the formation of adventitious leaf-buds.

V. LEAVES.

126. Leaves are expansions of bark, traversed by veins.

127. The veins consist of spiral vessels enclosed in woody fibre; they originate in the medullary sheath and liber; and they are connected by loose parenchyma, [7.] which is full of cavities containing air.

128. This parenchyma consists of two layers, of which the upper is composed of cellules perpendicular to the cuticle, and the lower of cellules parallel with the cuticle.

129. These cellules are arranged so as to leave numerous open passages among them for the circulation of air in the inside of a leaf. Parenchyma of this nature is called *cavernous*.

130. Cuticle is formed of one or more layers of depressed cellular tissue, which is generally hardened, and always dry and filled with air.

131. Between many of the cells of the cuticle are placed apertures called *stomata*, which have the power of opening and closing as circumstances may require.

132. It is by means of this apparatus that leaves elaborate the sap which they absorb from the alburnum, converting it into the secretions peculiar to the species.

133. Their cavernous structure (129) enables them to expose the greatest possible surface of their parenchyma to the action of the atmosphere.

134. Their cuticle is a non-conducting skin, which protects them from great variations in temperature, and through which gaseous matter will pass readily.

135. Their stomata are pores that are chiefly intended to facilitate evaporation; for which they are well adapted by a power they possess of opening or closing as circumstances may require.

136. They are also intended for facilitating the rapid emission of air, when it is necessary that such a function should be performed.

137. The functions of stomata being of such vital importance, it is always advisable to examine them microscopically in cases where

doubts are entertained of the state of the atmosphere which a particular species may require.

138. Leaves growing in air are covered with a cuticle.

139. Leaves growing under water have no cuticle.

140. All the secretions of plants being formed in the leaves, or at least the greater part, it follows that secretions cannot take place if leaves are destroyed.

141. And as this secreting property depends upon specific vital powers connected with the decomposition of carbonic acid, and called into action only when the leaves are freely exposed to light and air, (279.) it also follows that the quantity of secretion will be in direct proportion to the quantity of leaves, and to their free exposure to light and air.

142. The usual position of leaves is spiral at regularly increasing or diminishing distances; they are then said to be alternate.

143. But if the space, or the axis, that separates two leaves, is reduced to nothing at alternate intervals, they become opposite.

144. And it the spaces that separate several leaves be reduced to nothing, they become verticillate.

145. Opposite and verticillate leaves, therefore differ from alternate leaves only in the spaces that separate them being reduced to nothing.—(*To be continued.*)

Young Men's Department.

HINTS TO YOUNG FARMERS—No. VI.

POLITICAL DUTIES.

In a free country, offices are created for the public accommodation—not for individual emolument. They are generally considered honorary; and, when spontaneously conferred, are among the highest rewards of merit. To *deserve* them, is worthy of your ambition;—to *crave* them, is debasing, and implies a willingness to surrender that independence of mind which is the high prerogative of freemen; and to *depend* upon them for a livelihood, is to sell yourself, unconditionally, and the noblest faculties of your mind, for the fickle, unsubstantial smiles of power. A thirst for office is almost as bad as a thirst for rum. The more either is indulged in, the more insatiable are its cravings. Every repetition of the potion but begets new desires, until, finally, the passion, in one case, terminates in *delirium tremens*, and, in the other, in *delirium candidatum*. I have known many a worthy man ruined in his usefulness and in his fortune, by this latter disease, and ultimately terminate his career under the complicated horrors of both maladies.

In selecting your public agents, adopt the same caution that prudence would suggest in your private affairs: choose those who are acquainted with the business in which you mean to employ them, or who have honesty, industry and talents sufficient to perform it faithfully; who know your wishes and your interests; and who have shown an ability to manage a public trust, by having conducted creditably and successfully their private affairs. Such men possess civic virtues, and merit civic rewards.—But the man who cannot, or will not, bating unusual casualties, provide for his own wants, by his own industry, is unfit to be trusted with public matters. Distrust him who reiterates his importunities for your vote or your influence, as wanting either good habits or good principles. Good habits should render him independent of public aid, and good principles should make him ashamed to ask for it.

Are we, then, to reject, as the bane of happiness, the honors and emoluments of office? No; accept them, when proffered from worthy motives, as a duty, not as a source of wealth; as a compliment to your merit, and as the requital of an obligation which you owe to society;—but never accept them with conditions, express or implied, which would dishonor you as a freeman. Accepted under a sense of public duty, the duties will not seem onerous, nor the emolument become seducing. And when you have enjoyed the honors, and fulfilled the duties, sacrifice neither your political nor your religious sentiments to retain them. The spirit of a free government forbids monopoly. Whether they impose a duty, or confer honor and profit, offices should be shared by those who are capable and worthy, whatever be their creed in politics or religion: for, to make one's *professions* the passport to office, would be to patronize duplicity and servile meanness at the expense of honesty and sturdy independence.

I will close this lesson with the brief history of a school-mate. *Job Allerton*, commenced life under the most happy auspices. His farm was a pattern of neatness—his fields well cultivated, his cattle in fine order, his fences in repair, and his buildings tidy and comfortable. Job owed no man, and had a snug sum at interest. His children were growing up, under the parent's example, models of industry and good breeding. Every thing throve under his care, and he was pointed to by all as the best farmer in the town of S. His good habits, and the influence which these procured him, at length brought him into political notice, and he became a successful candidate, very much against his will, for the assembly. He returned from Albany in the spring with some new notions, but the habits of the farmer still preponderated. To a second nomination Job had less objection; nay, he secretly intrigued for it; for, as he told his friends, he thought he was *then* qualified to be useful. The second triumph, and the consequence it gave him in the political and fashionable circles, turned his head, and he came home an altered—an infatuated man. He *sunk the farmer*—and took upon himself the political charge of his town and county. He discovered that he was destined to become a great man, and politics and office engrossed his whole attention. He floated upon the surface until he had passed through the several offices of judge, senator, and member of congress, and then sunk so low, that those who had honored him once, knew him no more.

In the mean time the farm, no longer accustomed to the call of "*come boys!*" showed the absence of the master; the fences were prostrate, the cattle neglected, and the buildings were verging to ruin The boys, too, as boys ever will, aping the habits of the father, began to strut as gentlemen, and to look up for office and dignities. As industry departed, prodigality entered, and soon wasted the frugal earnings of former years. At length the illusion vanished, and Allerton saw, once more, things in their true light. He found himself deeply in debt, with slender means, and *without office*, with an indolent extravagant family upon his hands. Offices had ruined him, as it has thousands of others, who have abandoned good business to follow in its delusive train. In his distress he mustered resolution to do what many others will now have to do, or do worse: He pulled up stakes, and with the wreck of his former fortune, fled to the wilds of Indiana, resumed his former habits of industry, curtailed his expenses, and again prospered—leaving his official habits and official pride as a beacon to others.

Who is there, that among his acquaintance does not *now* recognize a Job Allerton?

The COMMON SCHOOL ASSISTANT, a monthly publication of eight quarto pages, conducted by J. ORVILLE TAYLOR, and devoted to the improvement of Common Schools and the education of teachers, is published at No. 71 State-street, at fifty cents per annum, in advance.

RECEIPTS, from May 24 to June 23, inclusive.—Nos. under 10 not noticed.

*Alexandriana,	N.C.	37	Montreal,	L. C.	13	Rockford,	Ia.	11
Burlington,	Vt.	19	Millstone,	N. J.	11	Richmond,	Va.	55
*Bethany,	Pa.	28	Middlebury,	O.	10	Red Oak,	Ga.	22
Batavia, Gen.		11	*Middletown,	Ky.	22	Rockville,	Ia.	11
Bladensburgh,	Md.	12	Middlebury,	Vt.	10	*St. George's,	Del.	17
*Centreville,	Md.	51	Martins,	Ark.	11	Starksboro,	Vt.	12
Cave Hill,	Ten.	13	Marias's Creek,	Ia.	11	Sidney, Del.		26
Charlottville,	Va.	22	*Mishawaka,	Ia.	22	Saginaw,	Mich.	11
Campbell C. H.	Va.	22	Mentor,	O.	22	Smithsburgh,	Md.	11
Caledonia, Liv.		16	*N. Brunswick,	N.J.	24	Shaftsbury,	Vt.	22
Dundas,	U. C.	38	*Norwich, Chen.		26	Syracuse, Onon.		11
Eugene,	Ia.	44	New Verno , Or.		11	*Stone Ridge, Uls.		21
Enfield,	Ct.	15	*Newark,	O.	33	Sheboygan, Wis. Ter.		20
Framingham,	Mass.	12	*New Market,	Va.	66	*Saratoga Spa, Sar.		33
*Geneva,	O.	22	Newburgh, Or.		12	*Strasburgh,	Va.	66
*Glenn's Falls, War.		24	New Lebanon, Col.		13	Trogman's store,	Va.	11
*Geo'town X roads,	Md.	44	*Pine's Bridge, Westc.		26	Vincennes,	Ia.	22
Hartford,	Ct.	16	Portsmouth,	N. H.	10	Vergennes,	Vt.	15
Hillsboro,	O.	33	*Philadelphia,	Pa.	281	Washington city,	D.C.	33
Huntington, Suff.		33	Prescott,	U. C.	13			
Harrisburgh,	Pa.	11	Pembroke,	Mass.	11	Wilkinson's Cross Roads,	Ten.	11
Ionia,	Mich.	11	Pennington,	N. J.	11	Wilson, Niag.		11
Kinney's 4 corners, Os		12	Quaker Hill, Dutch.		12	Ypsilanti,	Mich.	26
Logan, Tomp.		11	*Reisterstown,	Md.	22	Yellow Springs,	O.	11

Total volumes subscribed for during last month, 1,145.

* Including former payments.

PRICE CURRENT.

ARTICLES.	New-York. June 28.	Boston. June 21.	Philadel'a. June 26.	Baltimore. June 20.
Beans white, bush........	1 25.. 1 50	2 00.. 2 50	1 37..1 62	1 75
Beef, best, cwt............	9 75	7 50.. 9 00	8 00..9 00	8 00..8 50
Pork, per cwt............	9 00..11 00	10 00..12 00	8 00..9 00	6 00..6 50
Butter, fresh, pound,.....	14.. 15	14.. 25	11.. 14	25.. 37
Cheese, pound, ...	8.. 10	9.. 13	10.. 13	13.. 14
Flour, best, bbl......	10 00..10 75	8 00.. 9 50	9 00..9 37	8 00..9 00
Grain—Wheat, bushel, ..	1 30.. 1 70	....	2 00..2 05	1 60..1 70
Rye, do. ..	75.. 90	1 10.. 1 13	1 10..1 15	88.. 90
Oats, do. ..	50..	62.. 65	56.. 58	46.. 51
Corn, do. ..	90.. 1 04	1 03.. 1 09	96..1 00	92.. 94
Seeds—Red Clover, lb...	13	14.. 16	9.. 11	12.. 14
Timothy, bushel,.	2 50.. 2 75	2 75.. 2 87	2 75	3 00..3 50
Wool—Saxony, fleece, lb.	70.. 75	65.. 70	65.. 73	50.. 60
Merino, lb..... .	55.. 68	60.. 65	58.. 62	45.. 50
1-4 and com. lb...	45.. 50	40.. 45	40.. 44	33.. 36
Sheep, ...	2 50.. 5 00	2 25.. 2 88		
Cows and Calves,........	22 00..45 00	28 00..65 00		
Cotton,.................	8½.. 11	....	9.. 15	10.. 14

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

VOL. IV. ALBANY, AUGUST, 1837. No. 6.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor.*
☞ *Office No. 3 Washington-street, opposite Congress Hall.* ☜
TERMS.—FIFTY CENTS PER ANNUM, TO BE PAID IN ADVANCE.

Special Agents.—JUDAH DOBSON, Philadelphia—Messrs. HOVEY, Boston—ISRAEL POST & Co. Booksellers, 88 Bowery; ALEX. SMITH, Seedsman, Broadway. ALEX. WALSH, Lansingburgh, gratuitous agent. Any gentleman who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

THE CONTRAST,

BETWEEN THE HUSBANDRY OF NEW AND OLD SETTLED DISTRICTS.

The farmers in newly settled districts, forgetting that the fertility which gives them great crops, is the accumulation of ages, act as though it was inexhaustible; and, like the prodigal son, they go on living upon the patrimonial wealth of Providence, till its value becomes seriously impaired, or is wholly gone. They do not consider, that land, like every thing else, will wear out, by bad husbandry; and that it is the duty, as well as the interest, of the husbandman, to endeavor to preserve and to perpetuate its fertility. Their system is that of exhaustion. The lamentable effects of this system are seen all along the Atlantic border; where large districts, once teeming with fertility, have become poor and sterile. And even in the comparatively new states of Vermont, Kentucky and Tennessee, whose admission into the Union as states is fresh in our recollection, we already hear of exhausted fertility—of worn out lands; and the inhabitants of these states, in countless numbers, are pushing to the far west, in search of new and virgin soils, which, under a bad system of management, they may in turn feed upon and exhaust. The remark applies with like force to many districts of New-York. West Vermont and the valley of the Mohawk were, within our recollection, the great wheat districts, and furnished principally this important staple to the New-York market. Now they do not raise this grain in sufficient quantity for the domestic demand. Whence this change? Why this diminution in the products of the soil? The cause is too palpable to the most superficial observer. The farmer has been constantly going to the meal chest, without thinking of the necessity of replenishing his stores, till the meal is exhausted—he has been constantly drawing upon the riches of the soil, without employing those means, which Providence has placed abundantly within his reach, of preserving, or improving, its fertility. Had this system of exhaustion prevailed in Flanders, or in China, how lamentable would now have been the condition of their population? The lands in those countries were naturally no better than ours; and yet hastheir fertility not only been preserved, unimpaired, for thousands of years, but it has been increasing, with the increase of population, and the increasing wants of the human family.

In the old settled districts of our state, a very different course, from that practised in the newly settled districts, has, from necessity, to be adopted. In these, the fertility of the soil, having been greatly impaired, or exhausted, by the bad management of the pioneer settlers, it has become necessary to renovate and augment its productiveness; and where the experiment has been fairly tested, by industry, intelligence, and good management, the benefits have been so palpable, and success so encouraging, that improvements have increased in a progressive ratio, until many of the old districts, though once exhausted, have not only gained their natural fertility, but have been made to surpass it, and now exhibit examples of the most profitable husbandry in our land. The counties of Dutchess, Orange, Columbia, and a portion of Long Island, in our own state, and many districts in Massachusetts, Pennsylvania, &c. sufficiently attest this fact. In these, exhaustion has given way to a system of augmentation and improvement. The deterioration of lands, by constantly cropping, without returning to them the means of fertility—the dung of the farm—is as inevitable, as is the starvation of animals, from whom we withhold the food necessary to their existence. The augmentation of fertility, by draining, manuring and alternating crops, is matter of as equal certainty. We possess the means; we have abundant examples to guide us in their application; and if we will but exercise intelligence, industry and perseverance, we shall preserve fertility and plenty in the new, and augment them in the older settled districts of our country.

COAL ASHES AS A MANURE.

From the favorable result of an experiment made in Ohio, of employing coal ashes for manuring corn, noticed in another column of this day's Cultivator, we have been induced to inquire to what extent, and with what effect, this material has been elsewhere applied, and we now communicate to the reader the result of our inquiries. There are two kinds of fossil coal—bituminous and anthracite.—Whether the ashes of the two kinds differ in their fertilizing properties or not, we are unable to say. But the facts we are about to state refer to ashes of the bituminous coal, which is the kind principally used in Great Britain, as well as in the vallies of the Ohio and Mississippi.

Davy says, that coal, on distillation, gives carbonate and acetate of ammonia, which are said to be very good manure; and that soot, derived from the burning of coal, and known to impart fertility to a soil, owes a part of its efficacy to the ammonial salts which it contains.—p. 35.

"The ashes of coals and cinders," we are advised in British Husbandry, "have the very perceptible effect of loosening, as well as stimulating those soils, [clays and heavy tenacious loams,] and when they can be procured in sufficiently large quantities, in the neighborhood of great towns and manufactories, they are ploughed in with great advantage, to the extent of fifty or sixty bushels, or even more, to the acre. The ashes of coal, wood and turf, when used for domestic purposes, are, in almost all country places, mixed up by the consumers with the dunghill, and, unless they form an unusual proportion of the heap, occasion but little sensible difference in theperteis of the manure; but when applied alone, as top dressings upon grass, they both strengthen the herbage, improve its quality, and encourage the growth of white clover; they are also used for many other crops, both of corn and artificial grasses."—p. 332.

"Coal ashes," says the Complete Grazier, p. 565, "when properly preserved, supply an excellent top dressing for clover, on dry, chalky soils, in the quantity of fifty or sixty bushels the acre, scattered in March and April; and are equally beneficial on grass lands, on which they are spread either during the winter, or in the course of the following spring. The quality of coal ashes may be much improved, by covering up, in every cart-load of ashes, one bushel of lime, in its hottest state, for about ten or twelve hours, when the lime will be entirely fallen. The whole is now to be well mixed together, and turned over two or three times, when the cinders, or half burnt pieces of coal, which would otherwise be of no use, will be reduced to as fine a powder as the lime itself. It should, however, be remarked, that in order to obtain this benefit from coal ashes, they should be kept perfectly dry; and when thus prepared, they are stated to improve swampy, moorish soils very materially, and in a very short time."

LEACHED ASHES AS A MANURE.

Leached or drawn ashes possess a highly beneficial effect, particularly when applied to lands deficient in calcareous matters, as lime or marl. They serve to improve the permanent texture of such soils. The ashes from the soap boilers of London yield 90 parts in 100 of calcareous matter. They serve to free light lands of sorrel, and in swampy soils they effectually destroy rushes and other aquatic weeds. They are extensively used on the light sands upon the Atlantic coast, and are bought up at a shilling a bushel, in the towns and cities upon our navigable waters, and transported thither. There are immense quantities of these ashes in the interior, on the sites of old asheries, which may be employed to great advantage to agriculture, whenever the agriculturists of frontier districts find time and disposition to arrest the deterioration of their lands. The small quantity of alkaline salt and gypsum which they contain, also renders them much superior to common calcareous matter, as a top dressing for every kind of grass. Soap-boilers' ashes, according to the "Complete Grazier," are also excellent on a peat moss, in strong cold soils, when applied in the quantity of two or three cart-loads an acre. In Lancashire, they have been found good and durable on dry pastures, and have also been successfully used in other parts, and in various proportions. They are generally considered better for pasture than arable, and crops of clover hay have been more than doubled by them. The effect of this manure is, that *it always destroys bugs and vermin of every kind.* Evidence of these latter facts may be found in communications to the British Board of Agriculture, vol. vi. part ii.

EFFECTS OF CROPPING.

We have heretofore endeavored to make it plain to our readers, that living and dead plants contain the same elementary matters,—that dead plants afford the proper aliment for living plants,—and that consequently the fertility of a soil will be increased or diminished, in proportion to the quantity of dung, or vegetable food, which the farmer returns to it. New, or virgin soils, may contain a large supply of vegetable matter or humus, enough to feed several successive crops; yet the powers of fertility decrease with every succeeding one, if the crops are carried off from the soil and nothing returned to it to supply the loss,—until finally, if the system of cropping goes on in this way, the food of plants will become exhausted, and the land become sterile and barren, for all the useful purposes of husbandry. If we look to the old continent, we shall perceive that immense districts, once fertile and populous, have, by the injudicious management and violence of man, become almost waste and depopulated. A great portion of Egypt, of Judea, and a part of Spain, which once sustained their millions of inhabitants, and were to the world examples in the arts of culture and civilization, may be cited in illustration of this fact. And even in this new country, the soil, from the abuse of those who are charged with its culture, has already, in many districts, put on the garb of barrenness and old age, and threatens to be not much longer tributary to the wants of man.

If we put an ox to a stack of hay, he may subsist upon it for a longer or a shorter period, according to the quantity of food which it contains; but if we do not provide for him a further supply, when the stack is consumed, the ox will die. So with our crops: Providence has imparted fertility to our soil, and has endowed man with the faculty, and provided him with the means, of perpetuating that fertility. But the fertility of the soil will become exhausted, like the stack of hay, by cropping, and unless renovated by the care of the husbandman, our crops, like the ox, will die, or cease to grow, for want of food. And it is as improvident to neglect the one as the other—as reprehensible to starve the vegetable as the animal. However men may theorize upon the food of plants, every farmer *knows* that dung is an unfailing source of fertility—that dung makes grain, and grass, and roots—that grain, grass and roots fatten cattle—and that cattle make manure. These all work together on the principle of the endless chain, and suggest a certain means of preserving the fertility of our lands.

Crops exhaust the fertility of the soil, in proportion to the nourishment which they respectively draw from it. To keep up our comparison, we may liken the wheat and the corn crops to our neat cattle and horses, which are gross feeders, and require a large supply of food; and our grass and roots, to sheep and swine, which consume less—which thrive on scanty and coarse fare, and in a measure requite us for their keep, by the vegetable food they impart again to the soil. The hog and the sheep—the grass and the roots, will *live* upon the pasture or soil which will not sustain the more gross feeders—yet, like the latter, they will only *thrive* well when well fed.

Von Thaer, the distinguished head of the Prussian agricultural school at Moegelin, who has not perhaps his superior in the practical and scientific business of farming any where, has turned his attention, for several years, to a series of experiments and observations, with a view to ascertain the degree of diminution or augmentation of fertility, which soils ordinarily experience from the culture of the principal farm crops, and has combined the results of his observations in a series of tables. Although these do not possess perfect accuracy, for any thing like this would be impossible from the nature of the inquiry, they nevertheless serve as useful data to farmers who are anxious to preserve, or to increase, the fertility of their soils, by judicious rotations, and by applying all the means of fertility which the farm affords.

"The vegetative power," says British Husbandry, "is supposed to be in production to the quantity of *humus*, (or soluble vegetable matter,) or mould, which is contained in the soil, and its consumption has been found to be regulated according to the amount of nutritive matter consumed by the crops which are grown upon it.—The degrees of exhaustion thus occasioned, have only been fixed by naturalists with any degree of certainty, in so far as regards the usual species of cultivated grain and pulse; for, as to the other products of the earth, although they have doubtless similar effects when similarly repeated, yet those which consist of vegetable roots and grasses, and which are drawn from the land before they have perfected their seed, are nevertheless—whether from the influence attributed to their shade upon the soil, from sustenance drawn from the air and water, or from other causes with which we are not acquainted—only viewed as ameliorating crops. Corn crops are, however, considered respectively to exhaust in proportions which render the proportion of about 4½ bushels of wheat equal to that of 6 bushels of rye, 8½ of barley, and 12 of oats."

"According to all the experiments which have been made, there is reason to suppose, however, that upon a soil of moderate fertility, an average crop of wheat impoverishes the land to the extent of 40 per cent, while one of rye only produces that effect as far as 30.—Although barley is more exhausting than oats, yet, upon strong land, in a less perfect state of culture, the latter produces proportionably larger crops, consequently absorbs more nutriment; and, for this reason, they may be both stated at 25 per cent.

"The exhaustion by these crops is proportionately repaired, and the land is restored to its former nutritive powers, in three ways, namely—

> By the application of putrescent manure; according to its quantity and quality.
>
> By the ground being left a certain time under pasture; according to the number of stock which it can support.
>
> By the operation of a summer fallow; according to the manner in which it is performed."

Von Thaer considers the exhaustion by grain crops in the following relative proportions:—Wheat 4 degrees, rye 3¼, barley 2¼, oats $1\frac{6}{10}$ per bushel of product; that upon poor soils, whose original fecundity is 40, according to the scale given in the 4th No. of the present volume, a fallow adds 10 degrees to its fertility, pasture 20, and 8 tons of manure, of ordinary quality, 50 degrees—so that the manure and fallow, or manure and pasture, add 60 or 70 degrees, and are more than sufficient to double what the crop would have been without them. Without them, a crop of rye would have yielded but five bushels per acre; with them, the yield would be 7½ to 10 bushels. A fallow is beneficial, not only on account of the fertilizing properties it may draw from the atmosphere, and by the influence of its working on the land, but from the weeds and vegetable matters which it leaves. Pasture is fertilizing by the droppings of the stock, and the rich sward it gives to the plough and to the tilled crop.

In the two following tables, the *journal*, which is about two-thirds of an English acre, is the measure of land experimented upon.—The *schiffel* is more than a bushel and a half, Winchester measure. These tables are predicated upon accurate experiments, and show the augmentation or diminution of fertility, caused by the crops, the manures, the pasture and the fallow.

TRIENNIAL SYSTEM.

Crops and manures.	*Fecundity.*	
	Augmentation.	*Diminution.*
Fallow, ...	10 deg.	
6 4-10 loads of manure, ...	67 deg.	
Rye, 6 schiffels,................		30 deg.
Barley, 6 do....................		21 deg.
Fallow, ...	10 deg.	
Rye, 3½ schiffels,...............		17½ deg.
Oats, 4 do....................		10 deg.
Fallow, light folded, ...	28 deg.	
Rye,...........................		20 deg.

Oats, ...		10½ deg.
	115 deg.	109 deg.

By which course, land would gain six degrees of fertility in nine years, provided the manure was that of well fed cattle; but if principally straw, it probably would occasion no amendment.

ALTERNATE SYSTEM.

Crops and manures.	Fecundity.	
	Augmentation.	*Diminution.*
9 loads of dung,.....	90 deg.	
Potatoes,* 80 schiffels,..........	10 deg.	30 deg.
Barley, 9 do..............		31½ deg.
Peas,........................		10 deg.
3¾ loads manure,...............	37½ deg.	
Rye, 8 schiffels,...............		40 deg.
Clover, mown,.................	12 deg.	
Pasture, ...	20 deg.	
Oats, 11 schiffels,.............		27½ deg.
	169½ deg.	139 deg.

This course would augment the fertility of the soil, in eight years, 30½ degrees, besides producing crops of superior value. This increase is owing to the clover, and pasture, and the additional quantity, as well as superior quality, of the dung, made by cattle fed upon roots and clover. Land is progressively improved by the production of good crops, consumed upon the farm, and the manure which they supply, if the latter is properly husbanded and applied.

"This will be rendered still more apparent by the following summary of four different rotations actually carried into effect, and each consisting of 120 journals, or = to 76.1.6 11-5 acres English, and bearing the crops here mentioned, after deducting the seed.

No. 1.

Courses of crops.	*Product per journal.*
Fallow dunged.	
Rye,..............................	8½ schiffels.
Barley, ...	8½ do.
Oats, ...	8 do.
Clover and mown,..................	14 centnus.†

Ditto pasture two years, together with 170 journals of extra meadow and sheep pasture.

No. 2.

Oats upon pasture lay, ...	12 schiffels.
Fallow dunged.	
Rye,..............................	10 do.
Barley, ...	10 do.
Rye,..............................	5 do.
Clover and mown,..................	20 centnus.

Ditto pastured two years, together with 100 journals of extra pasture meadow, dunged.

No. 3.

Potatoes,.........	87 schiff.
Barley, ...	12 do.
Clover, ...	24 cent.
Oats, ...	14 schiff.
Peas, ...	6 do.
Rye, ...	10 do.
Tares, ...	20 cent.
Rye, ...	9 schiff.
Meadow dunged,..	15 cent.

Besides 100 journals sheep pasture.

No. 4.

Oats upon pasture lay,...	14 schiff.
Fallow, sown both before and after with winter and spring tares for fodder,..	20 cent.
Rye, ...	10 schiff.
Peas,.................	6 do.
Rye, ...	9 do.
Potatoes, ...	87 do.
Barley, ...	12 do.
Clover mown, ...	24 cent.

Do. pastured with sheep 2 years.
Meadow, 150 journals dunged, 15 cent.

"The produce of these several crops, both in fodder and manure, as well as in grain, and the profit gained by feeding of stock, was then summed up, and being calculated according to the price of grain, was reduced to schiffels of rye, from which were deducted the charges of cultivation, thus affording a parallel between the different courses as follows:—

Numbers.	Product of straw.	Produce of fodder, reduced in wt. to an estimate in hay.	Manure.	Profit on cattle.	Profit of grain.	Nett balance.
	Centnus.	Centnus.	Centnus.	Schiff.	Schiff.	Schiff.
1	4173	2936	14219	992	1948	1869
2	6464	4650	22228	1651	2958	3028
3	7916	9120	29272	2430	2960	3458
4	10973	12315	41791	3178	4323	5188

It appears from these results, that the fertility of the soil, and the consequent profits of the farm, was increased,

First. In proportion to the augmentation of manure, by reason of meadow, green crops and roots;

Second. In proportion to the increased ratio which the above-named crops and pasture, bore to the grain crops. And,

Thirdly. In proportion to the amount of pasture.

And it will be further seen, that the courses were profitable, and the fertility of the soil increased, in proportion as green, leguminous and root crops were alternated with grain crops—the two first, and least profitable courses, giving three grain crops in successive years—the third course intervening clover, peas or tares between the grain crops—and the fourth and most profitable course alternating dry, green, leguminous and root crops, followed by clover mown or pastured three years.

The inference from these experiments, made by one of the most intelligent and careful men, is, that if we would preserve, or increase the fertility of our lands, and thus augment the profits of our labor, we should not sow dry crops for two successive years, upon the same field—but alternate them, as far as practicable, with roots, legumens, green crops, meadow and pasture.

The reader will find these matters more largely treated on in British Husbandry, and particularly in Von Thaer's works on agriculture.

THE PRAIRIE REGION,

In which a respectable number of impressions of the Cultivator circulates, is likely ere long to suffer, or already suffers, for the want of wood and timber, not only for fuel, fencing, building, and the common purposes of life, but wood is or will be wanted for shelter, for crops and for cattle, to protect them from the inclemency of winter. The inhabitants should give their earliest attention to this matter. With a view to encourage and aid them, in providing in time, an absolute necessary for their posterity, we make an extract from Wetmore's late published Gazetteer of Missouri, showing a successful commencement in planting forest wood, by an enterprising citizen of that state. The editor is describing Saline county, which lies on the south bank of the Missouri, about 400 miles west of St. Louis, on the Mississippi river.

"They (the inhabitants of Saline county,) have a custom of preserving and cherishing with care, the clumps of brush,* and even the patches of hazel, with which their finest rolling prairies abound; and these are objects of as great solicitude as the sacred groves, or the foliage, of Academus was in Athens. When the prairie fires are kept out of the hazel patches for a year or two, FOREST TREES SPRING UP IN CONSIDERABLE VARIETY; and in the ploughed fields, cotton wood is observed to shoot up with a most rapid growth.—Some successful experiments have also been made in forest planting in Saline. Gen. Thomas A. Smith, who has a prairie farm of such ample extent, that a British peer would covet it as an estate suited to his rank, *has growing around him, a forest that he has planted, of black locust, chesnut, white pine, cedar, arbor vitae, cotton wood and catalpa,* all exhibiting the most thrifty and vigorous growth."

Mildew on the Gooseberry.—We have this year repeated the application of a weak brine to our gooseberries, by sprinkling it with a brush upon the foliage and fruit, to cure the mildew, and with apparent good success—the disease having been arrested, and in a measure removed. A Chautauque paper assures us, that syringing grapes (or gooseberries,) with strong soap suds, is a complete preventive of mildew.

---

* The augmentation of fertility is here added, because of the culture bestowed upon the potatoes as a fallow crop, the value of which is considered equal to 10 degrees.

The centnu is 103 lbs. English.

* It is remarked by Maj. Wetmore, the author, that if fire is kept from the prairies, a spontaneous growth of timber trees often springs up in them.

OLDEN TIMES.

We proceed to draw lessons of instruction from the first volume of the Transactions of the Society for the Promotion of Agriculture, &c.

SAVING MULBERRY SEED.

To save seed of the mulberry, Mr. De Labigaire gives the following directions: "Gather the berries as they fall from the tree; put them for two days in a dry place, where they must be turned up and down, for fear they should be heated; after which mash them with your hands in a tub, pouring over some water from time to time, in order to separate the seed from the must. Let then the water settle for a quarter of an hour, and all the useless particles floating over will be taken out. Repeat the washings till the seed is disengaged and pure. The best seed being the heaviest will stay always at the bottom of the tub. Then spread the seed to dry upon a piece of linen, and when dry it is put by till the season of sowing," which should be about the first of May.

CHANCELLOR LIVINGSTON TO ARTHUR YOUNG.

The next article in order is a letter from Chancellor Livingston to Arthur Young, well known as one of the most distinguished agriculturists of Great Britain. We quote from this a noble sentiment, and commend it to the special notice of all who are rich in agricultural experience, and who are capable of benefitting the community by their practical or scientific knowledge.

"The happiness of man," says the Chancellor, "depends so much upon the advancement of agriculture, that every new discovery, every improvement, by which the fruits of the earth are increased, should be thrown into the common stock; and the man who has been so fortunate as to make them, should thank God that he has been enabled, in some sort, to repay to society the debt that he owes them for the benefits he has himself received from the discoveries of others, to the great mass of which his own, however important, will be insignificant."

We have in this letter a singular instance of the change, produced by climate, upon the texture and color of the wool of sheep—and verifying the remark of the naturalist, that the texture of the hair and wool of animals becomes finer, and the color whiter, as they are removed to colder latitudes. "I send you," says Chancellor L. "a sample of wool, from a stock of sheep which I received from the West Indies, and which had originally no wool, but was covered with a thick coat of red hair. This is changing into wool, which I think superior in fineness to that of Shetland, with which I have compared it; but what is very remarkable, is, that the wool is white, though the original color of the sheep, and the hair intermixed with the wool, is of a mahogany, or what is called blood bay in horses."

This letter details the result of further experiments with gypsum, applied to potatoes, when about three inches high. Gypsum induced a remarkable growth, and the product was greater, without dung, than on the adjoining ground, which had been dunged. On buckwheat it caused an average growth of four feet, which lodged, and consequently diminished the product in grain. Oats, sown upon ground previously plastered, and in clover, averaged sixty-four bushels per acre, notwithstanding the soil was naturally poor. The great product was ascribed to effects of the clover, and the gypsum which had been sown in previous years.

Effects of shade-trees upon vegetation,—by Chancellor Livingston. "I planted maize on the west side of a young wood, consisting of oaks, poplars, a few chesnuts, and a large mulberry, somewhat advanced into the field. The shade made by the rising sun extended nearly across the field, and was not entirely off until about ten o'clock. I remarked, that as far as the shade of the chesnuts reached, the corn was extremely injured; it was yellow and small; the conical shape of the morning shade from particular trees, might be traced a considerable extent, in the sickly appearance of the plants. The black oaks were likewise injurious, but less so than the chesnut; the poplars very little so. Near the mulberry tree, the corn was covered by its shade a very long time every morning, and though not so large as that which had more sun, maintained a healthy appearance. The shade of the locust is well known to be extremely beneficial to grass grounds."

These experiments were repeated by Chancellor Livingston, in 1793,—the ground sown with buckwheat and plastered. The crop grew more than four feet high, *as well where it was shaded by mulberry and apples trees*, as where it had *no shade*. Under the black oak it was less healthful. Under the chesnut it was not half a crop. The shade of the apple tree was hurtful to Indian corn. The Chancellor concludes with remarking, "that the injury some vegetables receive from the shade of certain trees, is not owing simply to the diminution of light, but either to the change the light undergoes in passing through them, or from its dissolving and becoming the vehicle of some substance noxious to certain plants contained in the tree through which it passes."

The cast iron plough-share, was first introduced into use among us so late as 1793, as appears by a communication of Col. John Smith, describing it, and the first experiments made with it. Our recollections go back to the period when none but wooden mould-boards were used in our husbandry.

EXPERIMENTS WITH LUCERN.

The next article we shall notice is a communication from John Stevens, of Hoboken, detailing his experiments on wheat, clover and lucern.

Three and a half acres of loamy soil, were manured and cropped with Indian corn. The corn was cut up in October, and gave a good yield. The ground was immediately dressed with street dirt, ashes and dung, ploughed and sown with three and a half bushels of seed wheat. The product was estimated at 100 bushels of wheat on the three and a half acres. Clover was sown in March upon the wheat, and upon one acre eight pounds of lucern. The clover was cut in October, after the wheat crop was taken off, and gave four tons of hay. The seed of the lucern did not grow but partially. Two other experiments follow, designed principally to determine the best mode of managing lucern, and the best time of sowing it. From these experiments Mr. S. concludes,—1. That lucern should not be sown too early, say not before May. 2. That the ground should be well prepared for its reception, by a potato or other hoed and dunged crop, and that in the culture of that crop all weeds should be carefully extirpated. 3. That lucern may succeed very well when sown with barley, without clover. And 4. That the plant seems admirably fitted to our climate.

TALL MEADOW OAT GRASS.

Upon the superior properties of this grass we have an interesting letter from the Rev. Dr. H. Muhlenburgh, of Lancaster, Pa. "I have cultivated this grass a number of years," says the Doctor, "and find it, after a great many trials of pretty near all other grasses, the *earliest*, *latest* and *best* grass for green fodder and hay. It blossoms in the middle of May, the same time with the common red clover, and the seed ripens a month after. Horses, it is true, do not like it green, at least not all of them, but eat it in hay. Horned cattle prefer it to all other grasses. It will grow best in clover soil, and the leaves are from two to four feet high before it blossoms; in the blossom the stalk rises from five to seven feet. It ought to be cut in blossom about the end of May, [middle or latter part of June in lat. 42,] and will yield an abundance of sweet good hay. The seed may be sown in the fall or spring, with or without grain, and must be brushed in or lightly harrowed. If mixed with clover, it will make uncommon good upland meadow."

RELATIVE VALUE OF GRASSES.

Dr. Muhlenburgh thus ranges the grasses he cultivated, their good quality being in the order in which they are named:—1. Tall meadow oat,* (*Avena elatior.*) 2. Tall fescue grass, (*Festuca elatior.*) 3. Meadow fox-tail grass,* (*Alopecurus pratensis.*) 4. Meadow soft-grass, (*Holcus lanatus.*) 5. Timothy, or meadow catstail grass, (*Phleum pratense.*) 6. Rough cock's-foot, or orchard grass, (*Dactylus glomerata.*) 7. Rye grass,* (*Lolium perenne.*) 8. Sweet scented vernal grass,* (*Anthoxanthum odoratum.*) 9. Reedy cinna, (*Cinna arundenacia.*) 10. Broom grass, (*Bromi,*) two species. All these, continues the doctor, should be cultivated with timothy, in our bottoms or meadows, which can be watered. For upland meadows he recommends clover, lucern and sanfoin,—the first being the best preparation for a good crop of wheat.

Dr. Muhlenburgh recommends a free intercourse among literary and intelligent men, with the view of promoting agricultural improvement. "Agriculture," he remarks, "will, I hope, be our chief study, and be the means to raise the Americans among the first nations of the earth."

* Exotics.

SCARCITY OF CATTLE FOOD IN BRITAIN.

The last winter and spring was a severe one for farm stock in the north of Great Britain. A letter shown to us from a farmer there, says:—"The last season was the worst I ever knew for keeping farm stock. The turnip crops were dreadful bad. Hay has sold from £6 to £8 per ton, (= to $26 to $33,) and so short is the crop of straw, that many cattle have not even that, and are dying daily; the sheep too are poorer than I ever saw them, and there is a great mortality among them; but I fear it will be much more so when the grass grows of which there is very little appearance yet, though nearly May. The present month (April,) has been the severest ever known, and still continues very cold. So much snow fell in October, that the harvest could not be got in, in the north of Scotland, which, with the severity and long continuance of winter, has produced a famine there to an alarming extent, and subscriptions are on foot here for the relief of the distressed, without which aid the land could not be again cropped in many cases."

Gloucester or Cotswold Sheep seem to be coming into repute, and to have been much improved. The writer above, and who ranks high as a breeder, says his sales, comprising 40 of sixteen months old, made near £17 each, = $75—and his brother's more than £15 each.

THE GRAIN WORM,

We are sorry to learn, has committed great ravages upon the wheat crop, and has extended itself, as we predicted, into Dutchess county, on the south, as far as Fishkill; and there are reasons to believe, that it may be found west nearly or quite to the Genesee valley. In a circle of 20 miles around this city, it is estimated, that the product of the wheat crop will be diminished two-thirds by them; and we are told that in some cases the wheat fields have been opened to the farm stock, not being considered worth preserving. The worm is also found in rye and barley.—Some spring wheat was sown by us in May, in the hope of escaping the worm. It is now (July 16,) coming into head. The fly of the grain worm is seen upon it at evening, in small numbers. We shall note its effects in our next number.

We would here call the public mind to the fact, that three years ago, while the worm was yet but on our borders, the State Agricultural Society pointed out, in a memorial to the legislature, the apprehended evil, and urged the policy of offering very liberal premiums for the discovery of an efficient preventive; but their suggestions were not even courteously noticed. Such premiums might not have done good—but they could not possibly have done harm; and had they led to the discovery of a preventive of the evil, such a discovery would have benefitted the state millions of dollars

EXPERIMENTS IN MANURING CORN.

A Muskingum farmer tell us, in the Zanesville Gazette, that last year he manured two acres of corn, on a sandy loam, putting a shovel full of each of the following materials in the hill, and planting directly upon it, viz:

1. Half an acre with sheep manure;
2. Half an acre with chip manure;
3. Half an acre with earth and manure from the barn-yard, the yard being ploughed;
4. Half an acre with stone coal ashes.

No. 1, planted on the sheep manure, did not any of it grow. There was very little difference between Nos. 2 and 3—the product being about 50 bushels per acre,—while No. 4 far surpassed the rest, and yielded 100 bushels an acre. Pumpkins were planted with each kind of manure; all did well, and gave a fine crop.

The quantity of fossil coal consumed in the country is every year increasing; and if these ashes should prove to be a means of adding fertility to our soil, to the degree indicated in the above noticed experiment, they will become invaluable. We want more assurance, however, which repeated experiments only can give, of their beneficial effects, and of their adaptation to particular soils and particular crops. We will be obliged to any gentleman who has experimented with coal ashes, if he will send us the result of his observations on the subject.

EXPERIMENTS WITH GYPSUM.

The following was given to the board of agriculture, by H. Smith, as the result of nicely managed experiments with gypsum and clover. The two pieces were precisely similar, lying alongside each other, and treated alike, except as to gypsum.

CLOVER HAY PRODUCT.

	Per perch.		*Per acre.*			*Value at 6s. per cwt.*		
	lbs.	oz.	Cwt.	qrs.	lbs.	£	s.	d.
A. Gypsum,........	42	0	60	0	0	18	0	0
b. None,...........	14	0	20	0	0	6	0	0

CLOVER SEED PRODUCT.

	Clover straw, per perch		Clover straw, per acre.			Am't at 12d. per cwt.			Seed per perch.		Produce per acre		Value at 12d. per pound.		
	lbs.	oz.	cwt.	qrs.	lbs.	£	s.	d.	lbs.	oz.	qrs.	lbs.	£	s.	d.
A. Gypsum,.	16	0	22	3	12	1	2	9	0	10½	3	21	5	5	0
b. None,....	3	3	5	0	0	0	5	0	0	2	0	20	1	0	0

OUR CONDITION.

"With the hardiest and most enterprising population on the globe, and a soil unequalled in fertility, we have been so idle, or such improvident cultivators, as to be compelled to depend on other nations for bread. Politics, and trade, and the mysteries of banking, and the haste to be rich, and the speculations in stocks and in western lands, have employed thousands, we might say millions, who would have been more honorably, and, it seems likely to turn out, more profitably employed, in following the plough, or in wielding the axe and hoe."—*Gen. Farmer.*

Men have sought too much to live by the labors of *others*, and not by their *own* industry. They have built on foundations of sand; and now that the rains fall, and storms come, and beat upon their castles, they tumble into ruins. Industry is the only sure foundation, at least for the farmer and mechanic, to build upon.

The moisture in the soil influences its temperature; and the manner in which it is distributed through, or combined with, the earthy materials, is of great importance to the nutriment of the plant. If water is too strongly attracted by the earths, [as by clay,] it will not be absorbed by the roots of plants; if it is in too great quantity, or too loosely united to them, [as in sands,] it tends to injure or destroy the fibrous parts of the roots.—*Davy.* Thus good soils contain clay, sand and lime.

Absorbent properties of soils.—The power of the soil to absorb water, by cohesive attraction, depends in a great measure upon the state of division of its parts; the more divided they are, the greater is their absorbent power.—*Ib.* Hence the benefit of frequently pulverizing the surface among hoed or drilled crops, of thorough ploughing, and of pulverizing with the harrow and roller, to avert the effects of drought.

The power of soils to absorb moisture from air, is much connected with fertility When the power is great, [as in those that have a due mixture of sand, finely divided clay, and carbonate of lime, with some humus, and which are kept so loose and light as to be permeable to atmospheric air,] the plant is supplied with moisture in dry seasons; and the effect of evaporation in the day is counteracted by the absorption of aqueous vapor from the atmosphere, by the interior parts of the soil during the day, and by both the exterior and interior during the night.—*Davy.*

TILLAGE HUSBANDRY.

RYE,

Ranks next to wheat, as a bread corn; is used for that purpose in the entire northern part of the continent of Europe, and very extensively in the northern states of America, particularly in New-England, where it is generally combined with corn meal in the fabrication of bread. In Holland, and in some of the German states, rye bread is fed alike to horses and their drivers. It is considered wholesome, and the husk possesses an aromatic and slightly acidulous flavor, which renders it agreeable to the palate. The bran should not, therefore, be entirely separated from the flour.

Soil.—The soils designated by Von Thaer as suitable for rye, and because, perhaps, that they are illy adapted to other crops, contain from 18 to 23 per cent of clay, from 75 to 80 of sand, little or no carbonate of lime, and but 1½ per cent of humus, or vegetable mould. They are considered the lowest rate of sandy lands, and in the comparative estimate of value, as worth only one-fifth of the first class of strong wheat lands. A large body of the lands in the northern and middle states are therefore proper lands for this grain. In truth, it is generally sown upon soils that promise little return in better crops, and is too often left to shift for itself. Yet it nevertheless will repay good treatment, as well as more favored crops. It is the only grain that will grow upon soils containing more than 85 per cent of sand.

Cultivation.—Farms that will not produce good wheat, may be made to produce good rye; yet to render it profitable, it should not be made to follow, in consecutive years, as it often is, in the same field—sown with wheat, in the proportion of one to thirty of seed, rye is affirmed to be beneficial to the product of the wheat, affording shade and shelter, and protecting the latter from mildew, much improving the sample of the grain, and, upon light soils, often giving an increase of two bushels per acre in the product. This fact, which we take from No. 6, vol. ii., of British husbandry, may afford useful suggestions to those who raise wheat only for their household consumption. Rye will not thrive upon a wet soil. Its general treatment nearly resembles that of wheat.

The *seed* is generally sown early in September, sometimes in August, and sometimes, in an emergency, in November. It requires more covering than wheat.

When sown early, rye is often depastured in autumn, by calves, sheep, and even cows, without prejudicing the crop, and even to its advantage. It is often sown as a soiling crop, to be cut in spring and fed to stock.—The quality of the flour is improved by the grain being cut before it has become perfectly hard.

Industry.—It is a serious misfortune to thousands, in these times, not to have been brought up to labor. Head work, without the co-operation of the hands, is becoming rather an unprofitable business to many. And yet, with these facts staring us in the face, we are not willing to profit by the lesson which they teach—we want our children to live without work, though we know it has been the only substantial means of our success in life. Let us raise the superstructure for useful ends, and then bestow upon it all the embellishments that our means, and sound judgment will permit—teach our children how to provide for themselves honestly, before we bedeck them with gewgaws that serve to inflate their vanity, and to sink them in the estimation of wise men.

HAY-MAKING.

Philosophy teaches, and many years experience has confirmed us in the correctness of her teachings, that not only clover, but all hay in which clover, or any of the succulent grasses, are constituents, should be cured in small grass cocks, not rolled, but formed of layers with the fork. The objections to the old mode of curing wholly in the sun, are, in the first place, that the leaves and finer parts of grasses, dry, crumble and are lost, ere the stems and succulent portions are fit to carry to the barn. In the second place, that an intense hot sun is hurtful to the quality of the hay, that cured in the shade being always the most fragrant and nutritious. Third—it is liable to be seriously injured by the dew, sudden showers, or continued rains. And fourth, it demands more labor than the new mode. We will briefly state our method of management, which experience has induced us somewhat to vary.

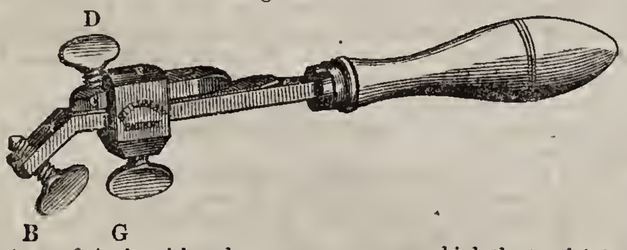
Our grass is heavy, averaging, perhaps, 2½ tons to the acre, and abounds more or less in clover. Where this preponderates, or is in any considerable proportion, we endeavor to cut when the clover has just passed the full bloom. The grass is of course succulent and juicy, and the swaths heavy. That which is cut in the fore part of the day, if the weather bids fair, is turned over in swath, but not spread or tedded, after three or four o'clock, in order that the wilted portion may be covered from the dew. If rain is apprehended, it is put into grass cocks, instead of being turned in the swath. The grass which is mown in the afternoon is put into cocks the following afternoon, having been turned in the swath at ten or eleven, if time will permit, or if the grass is very heavy or wet. We never spread from the swath, unless rain falls before it is cocked; and in this case it is made into cocks as soon as the water is exhaled, and the grass wilted. We prefer to leave the cocks undisturbed two nights and one day, and until a fair day, in which the curing process may be completed, and the hay housed. It may stand a week in cocks without receiving any injury, if they are properly made. In the finishing process, the cocks are opened in the morning, say at nine or ten, the hay shaken up, that the moisture, which is now principally upon the exterior of the grass, may pass freely off—it is turned over at eleven to two, and at two to four it is completely cured, and fit to be taken to the barn. Cured in this way scarcely a leaf is wasted, and the hay has a freshness, fragrance and fine color, much to be desired. There is at least ten per cent gained in quantity, and as much in quality.

The practice of the best English, Flemish, and French farmers, says Deane, is to expose their hay as little as possible to the sun. It is carried in dry, but it preserves its green color; and you see hay two or three years old in their market, of so bright a green color, that we should scarcely conceive it to be cured; yet they are in the practice of preserving it for years, and value it more for its age. The cock excludes it from the sun and preserves it greenness; and if a slight fermentation takes place there, the hay seldom heats, and never spoils, in the mow or stack. It is the best mode to make *good* hay.

PATENT SAW-SET.

We have received the complement of one of these, from Mr. Stillman, the patentee, of Herkimer county, with which we are highly pleased, and with which any man, or intelligent boy, may set a saw, to any required guage, in ten minutes. Every farmer should keep a saw; and the advantage of having it set and sharpened, which any one may learn how to do in five minutes, with this instrument and a four-penny file, will in a few days compensate for the expense of this instrument, six shillings, besides the satisfaction one ever feels in having his tools in good order.

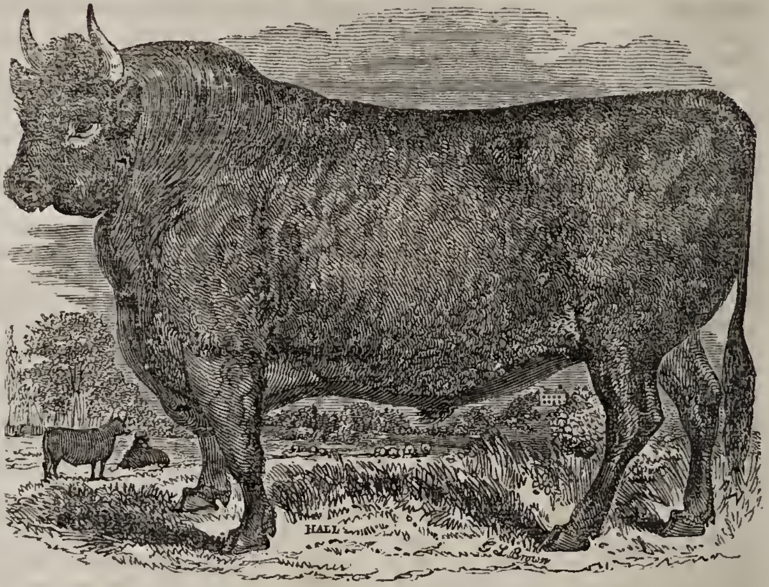
Fig. 33.



A is a piece of steel, with a sharp corner, across which the tooth is bent, with a screw B, to guage the width of the setting; C is a shorter piece, narrowed at both ends, for coarse and fine saws, and fitted with a screw D. *e* is a thin slide, passing in or out, to stop the tooth at the point at which it should be bent. F is a band, by which A, C, and *e* are held firmly together by means of the screw G. To adjust it to the saw, first loosening the screw G, place the slide *e* so that the bottom of the tooth may come across the corner on A, by the screw D, place C so that the tooth may pass in or out freely, and at such a distance from the corner that it may cover about half the tooth, secure it by the screw G; turn B so that by touching the saw plate, it may set the saw at the desired width. If the saw is hard, let the tooth have still more length to bend in.

NEAT CATTLE—DEVONSHIRE.

Fig. 34.



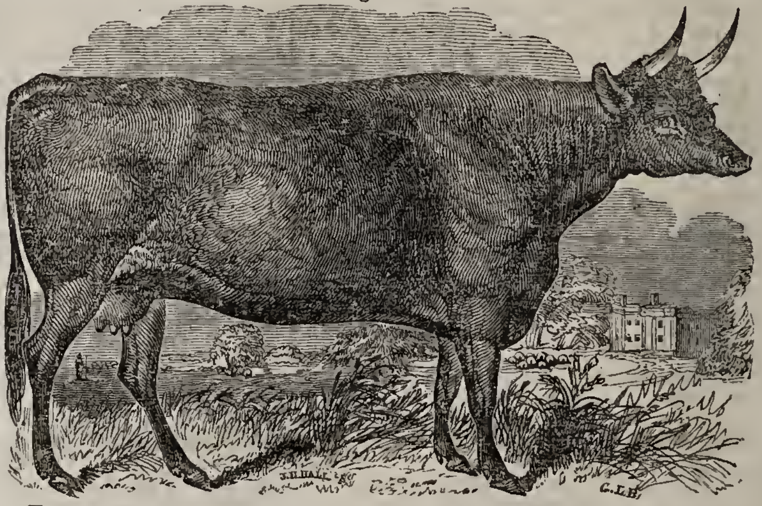
The Devonshire cattle are classed as middle horns, and have long been celebrated for their beauty, activity at work and aptitude to fatten. A description of the fine points of the Devon cattle, will be found in our first volume, page 26. The bull is a great deal less than the ox, and the cow almost as much smaller than the bull. The cow is particularly distinguished for her full, round, clear eye, the gold colored circle round the eye, white horns, mahogany color, and, if waved, the better.

The qualities of the Devon cattle may be referred to three points:—their working, fattening and milking.

As working oxen, upon light soils, or with moderate loads, the oxen are unrivalled for speed. Very few horses exceed them in speed. They are docile, good tempered, and, according to Vancouver, a team of four steers will plough, as a common day's work, two acres a day. Four steers will do the work of three horses, though a horse is ordinarily deemed equal to two oxen. They may be trotted, with an empty wagon, at the rate of six miles an hour.

Very few cattle rival the Devons in their disposition to fatten. In a given time, they acquire more flesh, and with less consumption of food, than most other breeds. Their flesh is of that mottled, marbled character, which pleases the eye as well as the taste.

Fig. 35.



For the dairy, the Devons are acknowledged to be inferior to several other breeds. Their milk is good, and yields more than an average proportion of milk and butter; but it is generally deficient in quantity.—There are those, however, who deny this, and select the Devons even for the dairy. The reader will find the extraordinary products of a Devon cow, owned by Mr. Holdrich, of Columbia, noted in the current volume of the Cultivator.

There are considerable herds of Devonshire cattle in this country.—The earliest importations were by Mr. Paterson of Baltimore, and by the late Rufus King, of Long Island, who received several individuals, as a present, from the herd of the celebrated Mr. Coke, of Norfolk. Messrs. Hurlbuts, of Winchester, Conn. have them in fine perfection, as have also the Messrs. Garbutts, of Wheatland, Monroe, and several others of our enterprising farmers.

FARM IMPLEMENTS.

The subscribers, of the committee appointed by the State Agricultural Society, to examine farm implements, met on Tuesday, July 10, at Albany, when the following implements were presented for their examination.

1. SLATER'S CORN SHELLER AND GRINDER.

This machine occupies a space of 5½ by 2 feet. It consists of a vertical cast iron balance wheel, with a jagged surface on one side, for shelling corn, upon the principle of Adriance's and other corn shellers, and of a fluted horizontal cylinder, 2½ inches in diameter, working in a concave cast iron bed, for the purpose of cracking corn and other coarse grain. The model exhibited is propelled by manual power, by means of a crank, and a drum is also attached to it, for the purpose of applying horse power. The committee had not an opportunity of satisfactorily testing this machine, but they believe that the grinding or cracking process requires horse or water power to answer the purpose of its construction. Price $30, for sale by Thorburn.

2. BEMENT'S IMPROVED DRILL BARROW.

The improvement consists of an oval globe, instead of a barrel cylinder, which is pierced with holes at proper distances for sowing mangold wurtzel; and when it is required to sow carrot, turnip, or onion seed, a rim, or band, with small holes in it, is attached to the globe, and the seed is dropped at regular distances. The globe is put in motion by a broad iron wheel, which answers the double purpose of supporting the frame, and rolling and covering the seed dropped before it. By substituting for the globe another simple apparatus, it plants corn, peas or beans, dropping from three to five grains about eighteen inches asunder. The committee saw the machine satisfactorily tried, and found it to answer the purposes designed.

3. BUSHNELL'S DRILL BARROW.

This was a roughly constructed implement, made by the proprietor, for temporary use, and comprised two rollers or wheels, placed two feet apart from centre to centre, the forward one ten inches, and the back one fifteen inches in diameter. The frame consists of two curved shafts, which serve also as handles to propel and guide the machine, connected by two cross bars. The coulter is placed near the front roller, and in rear of it is the hopper, which may be adapted to different seeds, and is graduated and operated upon by cogs placed upon the outer circumference of the rear wheel. Although of rude construction, this machine operated well, and the committee are inclined to think that the forward roller, which smooths and pulverizes the ground, and enables the operator to guage the coulter with precision, is an evident improvement. A small rake or brush, precedes the rear roller, and serves to cover the seed, and the rear roller completes the operation. Mr. Bushnell, the inventor, is an inhabitant of Lee, Mass. He thinks his drill can be sold, in complete order, at three dollars.

4. HOYT'S DRILL.

Mr. Geo. A. Hoyt, of Albany, showed the model of a drill box, for sowing different kinds of seeds. The box, or hopper, which may be attached to a hand barrow, has at bottom a graduated hole, which by the application of a strap attached to a drum on a hand barrow, opens and shuts, and lets out the seed at regular distances. Inside of the box is a spring, which forces the seed into the hole. The cost of the box, independent of the barrow, will be from $3 to $5. The committee tried this machine with carrot, parsnip, and turnip seeds, and found that it dropped them accurately.

It is not the province of the committee to decide upon the relative merits of the machines exhibited for their examination; yet they feel it their duty to say, that all the drill barrows they have enumerated are well adapted to drill husbandry, or for garden purposes. As the root culture is extending rapidly among our farmers, and is likely to form a highly valuable improvement in our husbandry, the committee recommend the drill barrows they have named, which are all adapted to manual power, as valuable accessions in the drill or row culture. As connected with this culture, and the garden, they beg leave also to recommend,

5 to 7. TURNIP HOES.

Three patterns of which were exhibited by W. Thorburn; one from Messrs. Adams and Thorp's factory, at Oakhill, [the model of which was described in a late Cultivator, as being presented to the Conductor, by Mr. Collins, of N. Jersey,] price 75 cents—and two kinds from Mr. W. R. Gates, of Lee, Mass. particularly designed for thinning the turnip crop,—price 37½ cents. For sale by W. Thorburn.

8. BEMENT'S CULTIVATOR.

This has been in use for three seasons, and the increasing demand for it is evidence of its usefulness. The frame consists of a centre piece 4½ feet in length, with expanding wings, which can be contracted at pleasure. It has three double pointed shares, which may be shifted for others, turning the mould from or to the plant, with two scarifiers between them. It has a wheel and nozzle in front, to steady it and regulate its depth. It is intended for horse hoeing corn, potatoes and turnips.

9. VAN BERGEN'S CULTIVATOR.

This has a centre and two parallel bars, the latter expandable at pleasure, connected by a simple frame work. It has six shares, so placed as to operate upon different portions of the ground to which it is applied, and the wings of the shares may be turned so as to turn the soil either from or to the grain cultivated. It has a nozzle and wheel in front to regulate its depth, as also double shares in front, to throw the earth both ways, like a double mould board plough, when it is required. The utility of this implement may be judged of from the fact, that the patentee has cultivated twenty acres of corn, and eight acres of beans, with it, the present season, without finding it necessary to employ the hand hoe but partially. The beans are in drills nine inches apart.

These implements have been noticed and figured in the Cultivator. They both work well, may be used in lands free from heavy or fast stones, greatly economise labor, and are admirably adapted to hoed crops.

10. DOUGLASS' WEIGHT POWER.

This is a machine intended for churning, by dash or rotary motion, for washing and for pressing cheese, grinding coffee, pepper, &c. It is propelled by weights, of 712 pounds, which are raised by a winch in two minutes. To the rotary churn, this power gives a graduated and regular action of 30 minutes, to the clothes washer of 15 minutes, and to the dash churn of 12 minutes. Upon the cheese press it gives any required and continued pressure.

The machine consists of a frame of three posts, connected by cross pieces, and of any required height, from six to eight feet. The boxes containing the weights, which latter may be of earth, stone or iron, are kept in place by grooves in the uprights. The machine and its application are certainly new; but whether they will answer the purposes of the dairy, &c. must depend upon its practical application hereafter, and the further improvements which are contemplated. Yet Mr. Douglass has the certificates of a great number of highly respectable gentlemen as to its utility in its present form. The inventor deserves credit for his ingenuity and perseverance, under many adverse circumstances. The cost of the machine, without churn or other aparatus, is from $25 to $50.

11. GLEASON'S HORSE POWER.

This is on the principle of the endless chain, and is built for one or two horses. It is applied to threshing, sawing, grinding, or other purposes of the farm. The machine is substantially constructed, the chain of approved form, and the floor upon which the horses tread easy and apparently durable. Price from $135 to $190.

12. WILSON'S MOWING MACHINE.

The committee regret, that both themselves and the proprietor were disappointed in seeing this machine fairly tested. One of the principal wheels was broken just before the committee reached the field where it had been in operation, and the new wheel which was substituted did not fit well to the other parts of the machine. Where the machine had just operated, the work was well done. This machine is not designed for small and uneven farms; but the committee feel persuaded, that upon extensive smooth bottomed alluvial or prairie meadows it may be made highly serviceable. If the proprietor does not command success, he certainly deserves it, by the indefatigable industry and perseverance which he has employed to perfect his machine.

13. PUDNEY'S REVOLVING HORSE RAKE,

Was seen in operation; and the committee are of opinion, that if managed by an active man, it will do a great deal of work, and do it well. It varies somewhat in principle from the common revolving horse rake, and it is sold by Thorburn at the moderate price of 6 to $8.

14. CONCKLIN'S PRESS HARROW.

This has been described and figured in the Cultivator. The committee did not see it in operation; but from the representations of those present who had used it, including one of their number, they are satisfied that it is a valuable acquisition to our husbandry, particularly on stiff soils, where it may be made to supersede cross ploughings, and be advantageously used for scarifying old meadows and pastures.

The committee will meet again on the third Tuesday in October next, at the City Hotel, in Albany, to examine such implements as may be offered for their inspection.

J. P. BEEKMAN,
A. VAN BERGEN,
J. BUEL.

MISCELLANEOUS NOTICES.

SEED OF THE WHITE PINE.

Robert Burton, of Lewes, Del. is desirous of obtaining half a bushel of seed of the white pine the ensuing fall. It will require thirty-five bushels of cones, or burs, to produce half a bushel of seed. The seeds grow between the scales of the cone; and the latter open about the first of October to release them. The cones should therefore be gathered in September, and after drying a few days in the sun, the seeds will fall out, especially if beaten with a stick. Any person disposed to furnish the seed, may advise the Conductor by letter, post-paid, and state the price for a peck or half bushel, or address Mr. Burton.

As Mr. Burton's letter contains useful information for the inhabitants of the sea coast, as well as of the prairie west, for making plantations of coniferous trees, we subjoin extracts from it. And we beg leave to recommend his example to others, particularly in the districts already indicated. These young forests will in a few years become important as shelter, not only to farm crops and farm stock, and for plantations of more tender trees, but they will become a source of certain and substantial profit—and will in some measure compensate posterity for the reckless havoc we have made of the primitive forests. In the vallies of the Ohio and Mississippi, the white pine, we understand, is seldom found growing. Its value as a building material stands deservedly high; and the pine forests, upon the streams tributary to the Ohio and Mississippi are fast disappearing. Were it known in the north, that the seeds of our coniferous and other forest trees were in demand, at a fair price, our seedsmen might collect and furnish them in any quantity.

"Twenty-five years ago," says Mr. Burton, "I planted half a bushel of clean seed of the yellow pine, on a poor sandy soil, about five feet apart each way, and now I have trees from them that will measure, one foot from the ground, ten inches in diameter, and in height they are from thirty to forty feet. The seed did not all come up. The way I did, as soon as I had gathered the burs, I put them in a loft over the cook-room, two or three feet thick, where they would be always dry and *warm*, and in the course of a month or so the burs had opened, and by threshing them with a small rod the seed fell out. I then took the seed and had them rubbed in the hand, to break the small feathers attached to each seed, and then fanned them as clean as wheat.

"The cheapest way for a person to seed his field with pine, is to plant the seed in rows about fifty yards apart, in a north-easterly and south-westerly direction, so that the north-westerly winds, which here are the driest winds that blow strongly, may send the seed from the trees which will grow in these rows, across to the other. The seed should be planted shallow, if planted with the hoe. If planted in rows fifty yards apart, the best way is to plough the rows, and sow the seed on the top of the furrow, or to harrow the row, and sow the seed on the place—the rains will settle them deep enough in the earth when the ground is broke a little."

GREEN'S STRAW CUTTER.

A correspondent, who dates Fauquier county, Va. and who "is a feeder of nearly 200 head of cattle, upon the *stall and in-door* plan," asks our opinion respecting the application of horse power to Green's Patent Straw Cutter,—and what quantity of hay or corn fodder, it will cut, with such power, in an hour? We doubt whether this machine, as now constructed, would perform much more if propelled by horse, than it now performs by manual power. Little can be gained by accellerating its motion; and the strength of a man propels it without fatigue. A very extensive and intelligent farmer who visited us while writing this, assures us that two smart men may cut five tons a day, of hay, with Green's Straw Cutter, by manual power.

We have heard highly commended the horse power establishment of a gentleman upon Staten Island, in which the power is applied, at pleasure, to cutting hay and fodder, upon an improved machine,—to grinding grain for family and farm use,—to crushing corn cobs and corn, grinding apples or roots, sawing, &c. We have solicited a plan and description of the building and machinery, the cost, &c. from the intelligent and liberal proprietor; and hope to have the satisfaction, ere long, of laying them before the readers of the Cultivator. Such an application of horse power, upon the farm, has been long a desideratum; and we cannot question the willingness of the proprietor to win the gratitude of his countrymen, by making the communication solicited.

ORNAMENTAL EXOTIC TREES.

A correspondent at Newark, Ohio, wishes us to indicate eight tried exotics, other than the European Linden, of the large class, most admired for park ornament, and where they can be obtained. Were we better acquainted with the winter temperature of Newark, we could give more satisfactory answers. The American forest trees of the first class surpass in beauty those of the old continent. The sycamore,* English and Scotch *elms, European larch,* weeping willow,* ailanthus,* European ash, and Oriental plane, are the principal species of large exotics found in our nurseries. Of the second class, the mountain ash,* (*Sorbus aucuparia*,) horse chesnut* and European alder,* are very ornamental. Those marked with the asterisk *, as well as the European linden, may be had at the Albany Nursery, though of some kinds the plants are small.

WHITE OAK AND POST OAK.

J. Seelye, of Sharon, Con. inquires, first, what is the distinction between post oak and white oak, the former being esteemed, at the south, better and far more lasting, than the latter. And second, on what particular day in the year a tree, perforated by woodpeckers, or slightly girdled with an axe, will die. *White oak* is a tree of the first class as to magnitude, and grows in every part of the United States, though in Florida it is found only on the borders of the swamps. It is the only oak, on which a few of the dried leaves persist till the circulation is renewed in the spring. Of all the American oaks, this is the best and most generally used, according to Michaux, being strong, durable, and of large dimensions. The *post oak* resembles somewhat in foliage the white oak, though the lobes of the leaves are broader, and less pointed; and its acorns are not half so large as those of the white oak. The leaf of the white oak has three, and that of the post oak four lobes. This oak belongs to the second class of forest trees, its height rarely exceeding forty feet. It is not found growing north of the neighborhood of the city of New-York, but abounds in the middle states and in Florida. The wood is less elastic, though finer grained, stronger, and more durable, than the white oak: hence it is preferred for posts, and is used with advantage by wheelwrights and coopers. As to the second point of inquiry, we are not aware that there is any *particular* day in the year, and we are sure there is not, when a tree will be killed by the pecking of birds. Trees die either by cutting off the supply of sap, which passes from the roots through the sap wood, or for want of elaborating organs—the leaves—which convert this sap into vegetable nutriment. Cutting through the entire sap wood, at any time in the early part of summer, so as to prevent the ascent of the sap, or divesting it entirely of the leaves, which elaborate this sap, in June, will seldom fail to kill the most hardy tree.

SAXON SHEEP AND WOOL.

E. Tilden, Esq P. M. New-Lebanon, Col. has a flock of 1,000 Saxon, and Saxon and Merino crossed sheep, which he considers of the first grade, and offers a part for sale—the bucks at from five to twenty-five dollars, according to age and quality. Samples of the wool from these bucks, have been deposited, for examination, at the office of the Cultivator.

J. C. Van Wyck, of Fishkill, Dutchess county, has also a flock of 500 prime Saxon sheep, bred with great care, which he wishes to dispose of —price not mentioned.

PRATT'S STUMP EXTRACTOR.

We have received from J. R. Drake, Esq of Owego, a handbill, which contains a figure and description of this machine, and also certificates of its performance, which we shall forward to our correspondent, J. M. Garnet, Esq. of Virginia. The machine is worked by a pair of oxen or horses, and can advantageously employ five men. It appears from the certificate of H. Hutchinson, engineer on the Chemung canal, that with one of these machines, sixty-eight stumps were extracted between two o'clock P. M. and sunset; and that with another two hundred and thirty stumps were extracted in a day. It is applied to green stumps, as well as to those which are partially decayed, and without the previous labor of cutting the roots. Nos. 1 and 2 are heavy, and designed for extracting green stumps; No. 3 is more compact, and may be transported on common wagon or cart wheels. Four men, says Judge D. with two yoke of oxen and a stump-boat, will extract, and convert into fence, stumps enough for fourteen rods in a day. The price for a first rate machine, with ropes, chains, &c. is nearly $375—without the apparatus the machine is offered at $150, delivered at Albany or Troy.

RUTA BAGA HOE.

We have been presented with a neat little implement for thinning turnips, or other crops, manufactured by Wm. R. Gates, Lee, Mass. It is for sale by Thorburn, at the moderate price of 37½ cents, including the handle.

HOLLOW HORN.

Sylvanus W. Gray, of Middlefield, Ohio, has sent us the following recipe for curing the horn-ail in neat cattle. We publish it, though we confess it smacks too much of quackery. It has too many ingredients, a part of which we suspect are at least useless.

"Take three eggs, same in bulk of black pepper, same of soot, same of salt, same of hen dung, mix with wheat flour till hard enough for pills; make nine, and give one at a time three successive mornings, and intermit three, and give three again, &c."

ITALIAN SPRING WHEAT.

There has been an abundance of this grain sown. It looks well, and, the grain worm permitting, there will be plenty of seed. Mr. H. Stephenson, who writes from North Lake, Mich. shall be supplied. The price cannot now be determined. We beg Mr. S. not to forget the beautiful prairie flowers, the seeds and bulbs of which he promises to send us. Mr. S. says, that fall wheat in his district, with some exceptions, will be a failure. We coincide with him in opinion, that in many parts of the country our reliance must ultimately be upon the spring varieties of this grain.

THE WHEAT CROP.

Our letters from Illinois, Michigan, Ohio, and the far west, are *not* fafavorable to a great product of the wheat crop, this grain having been seriously injured by the winter; and we very seriously apprehend, that the grain worm, which our legislators have considered too insignificant to notice, will lessen the crop of our own state to a most alarming extent. We do not mean to become croakers, but we seriously believe, that the high anticipations of an extraordinary abundant wheat harvest, which our newspapers have encouraged, will not be realized—this year.

HAY GRASSES FOR THE SOUTH.

Edward H. Bryan, of Vicksburgh, in the state of Mississippi, writes us, that clover will not succeed there, in consequence of the excessive heat of summer; that they want something that will furnish a winter supply for stock, and he begs us to indicate such grasses as will answer, and asks particularly our opinion of lucern. The soil, says Mr. B. is a stiff clay loam, the climate humid, the nights cool. If the tap-rooted clover will not withstand the summer heat of Mississippi, the fibrous-rooted grasses of the north can hardly be expected to succeed. The lucern is particularly adapted to a light, deep and dry soil, and on such a soil we have no doubt it will do well there It will withstand heat well. We recommend its trial, and also the gama and Guinea grasses, particularly the gama.

SPIKED ROLLER.

Mr. J. Boyle inquires, what should be the diameter of the spiked roller, if made of solid wood? If of plank, what thickness—how long the spikes, and how many rows? The size may depend upon convenience or fancy, and may range from twelve to thirty inches in diameter. Any deficiency in the weight of the roller,—for the spiked roller must be so heavy as to press the spikes or darts into the stiff soil where it is intended to operate,—may be made up by stones or other heavy substance, placed upon the frame. The object is to break and pulverise the ground, and raise a tilth—and conseouently the spikes ought to project three inches, and be sufficient in number to affect the entire surface. It will therefore require from five to eight rows upon a roller two feet in diameter. Concklin's Press Harrow, which very much resembles the spiked roller, has 12 rows of spikes.

Indian Pond Scythe Stones are obtaining a decided preference in our market, on account of their superior quality, and are the principal stones now found in our stores. They are obtained at Bradford, Vt. and are manufactured and sold by Filers & Co.

Foster and Van Vleeck's Patent Curve Cistern.—Mr. Foster put down one of these for us last year, which has so far fulfilled the patentees promise, and, for aught we can see, will prove good for a century—as the cement hardens with time. The materials required for a cistern to hold forty barrels, are three barrels of water lime, five loads of cobble or broken stone, or broken brick, and forty bushels sand. Wherever these cisterns have been adopted, we believe they have proved satisfactory, as is indicated by the certificates of many respectable citizens.

Lime, we mean the carbonate, whether in the form of powdered limestone, effete lime, chalk, marine shells or marl, differs in one particular from the other common earths—clay and sand:—it decomposes and disappears in the soil—sand and clay do not. Hence the advantage of re-applying calcareous matters to soils at intervals of a few years—of re-liming, re-marling or re-ashing tillage lands.

CORRESPONDENCE.

BONE MANURE.

J. Buel, Esq.—Dear Sir—I have been highly interested in reading the letters of Dr. Humphrey, recently made public, and as a farmer, particularly so with those relating to British agriculture.

In his 57th No. he remarks:—"The prodigious agricultural resources of the country, are developed, with extraordinary industry, skill and success. The richest and most profitable kind of dressing, which has been tried, and which is a new source of agricultural wealth, to Great Britain, is *bone manure*. In Yorkshire and Lincolnshire, its influence has been almost miraculous," &c.

Now I observe that the richest and most profitable manure to the English farmer, is almost entirely disregarded by the New-York and N. England farmers.

My object in this communication, is to get information. I ask, then, has not the time arrived, when bone dust may be profitably used in the older states, where it can be obtained in considerable quantities, particularly on hills, where it is difficult to carry coarse manures, and in districts, as in this vicinity, where plaster must be carried from 25 to 35 miles by land? If so, I wish to know if they can be prepared for use in common plaster mills? Also, what is the relative value of bones that have for a year or two been exposed to the atmosphere? And finally, in what way can it be best employed? Should this subject be thought of sufficient importance, a little information would be received with thankfulness, by an attentive reader of your excellent paper.

As we are turning our attention to the cultivation of roots, it appears to me we cannot raise the amount desired, without more manure. Permit me to mention one method of making it which I have found profitable, but is greatly neglected by our farmers.

The present is to be an extraordinary season for potatoes, at least for the vines. I find that by carting these to my hogs, and allowing them to work them over, and mix with their manure a few days, then throwing them in a pile to remain till spring, a large quantity of manure can be made. If not thoroughly decomposed, it makes an excellent manure for ploughing in for corn, or dropping in hills of potatoes. If left on the surface of the field, they are nearly lost for manure, and are very troublesome in tilling the following spring.

Straw is often used for this purpose when it should be used for fodder.

Respectfully yours, L. FOOT.

Lee, Berkshire co. Mass. July 15th, 1837.

REMARKS OF THE CONDUCTOR.

We have adverted to the subject of bone manure in our second and third volumes, and stated our mode of obtaining and preparing it. We have been less urgent upon this matter, because we saw little hopes of our farmers regarding this source of fertility, while they remained reckless, as too many of them do, of their dung and other sources of fertility which abound on every farm. The subject shall receive our early attention. In the mean time, in reply to Mr. Foot's questions, we answer, first—the time *has come* for every farmer to husband and apply to his lands, all the means of fertility at his command. Bone dust will not prove serviceable upon clays. It is applied at the rate of 20 to 40 bushels on an acre. Bone mills can only be profitably erected near navigable waters. Secondly—bones can be crushed in plaster mills, so as to answer well. Thirdly—bones that have been boiled are deemed as good as those which have not been boiled, and old bones nearly as good as fresh ones. And fourthly—not only potato tops, but sedge grass, weeds, straw, and every sort of vegetable matter, or earth abounding in it, as that from swamps, ditches, ponds, &c. leached ashes, soap suds, urine, &c. may all be profitably commingled in the dung yards, which should be made concave in the centre, in order to retain the liquids of the yard, and which these vegetable matters will absorb. And the yard should be thoroughly cleaned every spring, and the contents fed to hoed crops.

AN AMERICAN SIROCCO.

Newark, (O) June 17, 1837.

Dear Sir—On Tuesday the 6th instant a very violent wind, almost a tornado, swept over our country, to a very wide extent, filling the air with a cloud of leaves, dust and other light matters. I was not out during the wind, which lasted some ten minutes, but those who were, said that it produced upon them a remarkable sensation, and nearly suffocated them. A gentleman of Canton, informed me yesterday, that he was on horseback whilst the wind was blowing, and that its effects upon him were similar to those described from the sirocco, in the south of Italy. On his return home, he said, he observed, first that his green gage plum tree seemed to have been scalded by hot water; its leaves were withering and turned black. He inquired of his family, if hot water had not been thrown upon the tree, and on being answered in the negative, began to suspect it was the effect of the wind, and upon extending his observation, discovered that other trees in his garden, and even orchard grass exhibited like appearances; he afterwards noticed like effects upon some of the tender forest trees. In his journey from Canton to this place, about 100 miles, he traced this appearance along the whole distance. I noticed in my own garden, that the *blight* commenced about that time, (upon my ornamental shrubs more than upon fruit trees,) and made rapid progress. A Tartarian honey-suckle withered to the ground, and is dead; a flourishing sumach *(Rhus typhina,)* commenced withering, as though scalding water had been poured upon it; it seems to be now slowly recovering, but the young branches are shrivelled. Many similar appearances can be traced in my garden; the tender points in young branches, in several trees, are thus affected. Are we to attribute the *blight* which for some years past, has been destroying our fruit trees, to such a cause? I will not, however, theorise at present. Our facts are too few for a rational theory as yet; but it would be well that farmers and horticulturists would notice the condition of their trees, and the state of the weather, that should the blight attack them, it may be ascertained whether the cause is atmospheric or otherwise.

Yours truly,
ISRAEL DILLE.

NUTMEG POTATOES—LAKE SUPERIOR CORN.

Lake C. H. Ia. July 12, 1837.

Dear Sir—As soon as I can possibly find leisure, I intend to send you a *description* of the several kinds of prairie, as to appearance, vegetation and cultivation. I hope to send you "prairie flower seeds"

I have (to us,) a rare kind of potatoes, called "nutmeg potatoes," which ripen in about six weeks, grow small, about the size, and as smooth as hen's eggs—very dry and rich—valuable for garden culture. Have you such? Also—Lake Superior Indian corn—which *stools* out like wheat, each branch bearing a small, short ear, of a redish yellow color. The stalks low, may be planted very close, and requires the shortest season of any other corn I ever saw to come to perfection. Perhaps it is not new to you.

Do you know what is meant by "Burr Oak?" The shell of the acorn being fringed or *burred*, and highly prized as feed for hogs.

Yours, &c. SOLON ROBINSON.

[Mr. Robinson will do us a particular service by sending us seed of the potatoes and corn, as well as of the prairie flowers. The *bur*, or *overank oak*, grows in most of the western sta'es—is a beautiful tree, and is distinguished as having the longest leaves, often 15 inches, and largest acorns, of any species of the oak.—*Cond*]

BARNS AND OUT-BUILDINGS.

Weybridge, Vt. June 7, 1837.

J. Buel, Esq —Dear Sir—I noticed solicitations in the first No. of the 4th volume of the Cultivator, for improved plans of Farm Buildings, I herein send one of my design.

Fig. 36.

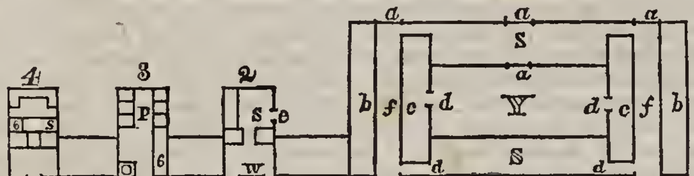
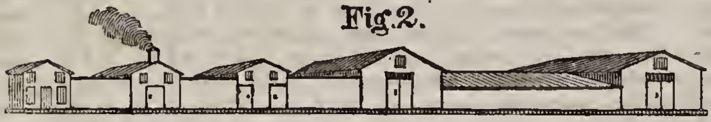


Fig.2.



EXPLANATION OF THE GROUND PLAN.

No. 1, 1, are two barns 40 feet by 80.
- a, a, great doors, 11 feet wide.
- d, d, stable doors from 4 to 5 feet.
- e, e, stables for cattle, 12½ feet wide, 72 feet long, with manger 2 feet [wide.
- f, f, floors, 11 feet wide.
- p, p, passages from floor to sheds, marked s, which intersect the two barns, at each end, 90 feet long and 16 wide.
- b, b, bays for hay and grain 14½ feet wide.

No. 2, Horse barn and wagon house, 25 feet by 40.
- d, d, doors, 9 feet wide. m, m, m, mangers, 3 feet wide.
- a, passage from waggon house to stable, 4 feet wide.
- s, stable, 25 by 22, with a door at e.

No. 3, Swill house and piggery, 25 feet by 40.
- d, door, 4 feet wide. o, a cauldron set in brick.
- b, bin for storage of potatoes, &c.
- p, passage, 5 feet wide, with a feeding trough on each side 20 ft. long.
- H, H, 8 pens, sufficient for 32 hogs. [at the trough.
- e, e, studs erected to prevent the interference of one hog with another

No. 4, Corn house, granary, and tool house or work-shop, with a wool room in the loft, in front 25 feet by 26.
- c, threshing floor, 14 feet by 25, with a crib on 3 sides, i, i, i.
- d, d, doors, 4 feet wide.
- g, a granary, 25 feet by 13, with bins on two sides, b, b.
- t, tool house, work shop, &c. with a stairway leading to the wool-room, and trap door for sacking wool.

I would recommend a cellar under the front half building No. 3, for the storage of potatoes and other roots. The loft is convenient for the storage of food and bedding, &c. for hogs.

Loft No. 2, for hay—40 feet space from No. 2 to No. 1, with 3 girts framed in; in front of the building, matched boards reaching to the eaves of each, and if necessary for more sheds; all that will be required to complete them, is to lay roofs between each building, No. 2, 3, 4, 30 feet apart. I would recommend matched boards for the outside covering of each building. Eve troughs attached to the barn to convey the water from the yard Y, which is concave or excavated 3 feet more in the centre than at sides. The buildings all standing 2 feet from the ground with posts 16 feet. Purline plates, and a window in the gable end of each barn, and over the great doors.

The above description is rather a complicated concern, made up and described in too great a hurry. If it should appear in print, (which is not very likely,) it can be arranged in better order, &c. In the front view, the windows are too large in proportion.

You don't get many communications from Vermont, neither can much be expected, as we are very much in the dark as to the improved modes of farming. You will know how to excuse us, for I understand your native place is Vermont. I remain, dear sir, yours in haste,

S. W. JEWETT.

EXTRACTS.

SPEECH OF JOHN JAY VIELE,

Delivered in the State Agricultural Convention, Feb. 3, 1837.

Mr. President—In looking about me, I see assembled a numerous collection of gentlemen, from all parts of this great and wide extended state, comprising much talent, much moral worth, and, if I may judge from the distance they have travelled at this inclement season, I should say they possessed an eminent degree of disinterested patriotism and philanthropy. What, I ask, has called together this numerous convention of agriculturists? Is it to promote the objects and interests of party? Most assuredly not. Agriculture is of no party. It comprises the whole of all parties. Five-sixths of our whole population are engaged in its active pursuits; and the other one-sixth is as dependent upon it, as the branch is upon the roots for nutriment and support. Have they any sinister or personally ambitious views in coming up hither? I trust and verily believe not. The character of this convention, and the reputation of those who compose it, utterly refutes any such imputation—entirely disperses all suspicion. And beside, the cause itself, and proposed objects, is not susceptible of any such perversions. What then, Mr. President, has assembled this truly respectable convention? The question may be answered almost in a word *It is to do the greatest good to the* GREATEST *number*. It is to devise the best plan to improve the agriculture of the state, and in so doing, ameliorate the condition and promote the happiness and prosperity of the whole human family. *Truly*, then, it is a laudable and philanthropic errand upon which we have come. Truly, it is a cause worthy the attention and consideration of all, from the humblest laborer that treads the "vine clad hill," to him who sways the sceptre of government, and directs the energies of a great and free people. It is a fact that will he conceeded by all, that agriculture and the labors of those engaged in it, is the main source and foundation of individual and national wealth. That it is the basis and substratum of all other interests and avocations. On it, all depend—to it, all look for nutriment and support. That in proportion as this interest flourishes, does every other prosper, and when it languishes all others decline. Embracing, as it does, so great a proportion of the community, it gives an impress to the character of our country and all her institutions. The farmers of the state, decide by their numbers, our elections—they control indirectly the government. How important, then, that they should be educated, and fitted for the discharge of those duties with regard to their country, in which they are most deeply interested, that they are now obliged for the want of capacity in themselves, to confide to others. How important that they should be qualified to direct and manage their own political concerns, rather than be nosed and led about as mere automatons at the beck of some professional demagogue. How important for the stability and well-being of our republican institutions, that the standard of education and knowledge should be elevated among so numerous and useful a body of citizens as the farmers of our land They require knowledge in order to enable them to discharge their duties to themselves and families, in the successful cultivation of the earth. Knowledge is essential to enable them to make judicious selections of rulers and to qualify themselves for the discharge of the multifarious civil duties that necessarily devolve upon them.

With this view of the subject, the question naturally arises—how shall the evils of which we complain, be remedied? How shall so desirable an end be attained? I answer, firstly, by the establishment of schools, liberally endowed hy the state; where the sons of farmers can be educated in a manner suitable to their occupation. It was wisely said by an ancient Grecian philosoper, that boys should be first taught that which they intend to practice when they become men. So the sons of farmers should be sent to a school where agriculture is taught as a science,—and where the advancement and perfection of that science is the primary object, and where a practical application of all the sciences shall be made to the useful purposes of life,—where the mind shall direct the hand, and where the beauties, the properties and the treasures of the earth shall be developed to the youthful mind; in such a manner, that it shall not forever thereafter be lost, but shall be carried with him into the world, into the field and the workshop; shedding its light and diffusing its blessing upon all within the reach of its influence.

But shall I be told, and do I have it urged as an objection to the establishment and endowment of such institutions, that we have already academies and colleges endowed upon a liberal scale, where all that desire it may receive an education? I grant it—and to the honor of our state be it said. But this fact, instead of being a reason against, is a strong and forcible argument in favor of, the proposed plan.

For I maintain that these institutions, although useful in their sphere, do little or nothing to promote the great and noble object which we have in view. The favors and bounties of government should be dispensed with an equal and impartial hand. And if I show that the literary institutions of the state, that have been endowed by appropriations from the public treasury, to which the farmers are the main contributors, are, from their nature and organization, calculated to benefit and build up a particular class in community; and that class not, perhaps, the most useful and productive, to the exclusion of the great body of the people; then, I think it will be conceded, that it is high time that the attention of our legislators and those entrusted with the administration of government, should be directed to the subject, to the end that the evil may be remedied, and equal and impartial justice done. And in pursuance of this subject, I must remark, without wishing to disparage the literary institutions of the state, that their tendency is not to diffuse general science among the laboring and productive classes, but to build up a literary aristocracy in the country. They are peculiarly calculated to prepare young men for the learned professions. They make good lawyers and good physicians, and they elevate the clerical character of the country; but it is very clear to my mind that they contribute very little towards improving the agriculture of our country; but on the contrary, their influence is to abstract all the young men of talent from the pursuits of agriculture and the mechanic arts; and merge it into the professions. They are filled mostly by the sons of the wealthy and most aristocratic part of community, among whom the honest yeoman and his profession is in bad repute; and the son of the farmer who, perchance, finds his way into them, soon ascertains that the occupation which has given him sustenance, is derided, and viewed as menial and slavish, he consequently imbibes a disrelish, and, perhaps, a disgust for it; and he hies away to the office of some lawyer, or the shop of some apothecary, and there learns to get a livelihood out of the honest earnings of a less respected class in community. And if, perchance, he does not take to one of the professions, as a general rule, his habits of industry are destroyed, his taste is vitiated, and he spends the remainder of his life a useless drone, a burthen, and I had almost said, a nuisance in society. The consequence and effect of this state of things, is, to protect and encourage the professions, to elevate them in the public eye; and on the other hand, to depress and discourage the business of agriculture and the mechanic arts generally.

With such effects, and under such discouragements, is it longer matter of surprise, that the first and best pursuit of man should be brought into disrepute and languish for want of the necessary stimulus and support? Is it longer to be wondered at, that the sons of farmers and mechanics should forsake the healthy, invigorating labors of the field and the workshop for the law office, the banking house, and the counting room? It is a matter of notoriety, and a lamentable fact, that almost every other occupation is considered more honorable, or more genteel than that of the farmer. The consequence is, a general abandonment of its pursuits, by all the ambitious youth of the country. This is an evil of great magnitude, and the cause is to be found in the want, or the absence of that knowledge in the agricultural community, that alone elevates character, exalts the human species, and renders man truly respectable. An elegant writer has said, and it has ripened into axiom, that "knowledge is power,—knowledge is wealth,—it is the philosopher's stone—the true alchemy that turns all it touches into gold. It is the key that unlocks the store-house of nature and discovers the hidden treasures of earth." Without it man would not be distinguishable from the brute; and in proportion as he is possessed of it, in the same ratio is he elevated above that lower order of creation.

That science has already done much to improve and promote the condition of our agriculture, cannot be controverted. To her she is indebted for almost all the improvements that have been made in tillage and the rural arts. To her she owes the introduction of the improved cast iron plough—the roller—the cultivator—the threshing machine—the hay press, and the whole host of labor-saving machines, that have lessened the toil of the husbandman and increased the productions of the earth. Another triumph of science, we have also this day witnessed, in the recent invention of the silk reel and spinner; which promises to be of immense value and utility, in this new and interesting branch of rural industry.

The benefits that will accrue from the establishment of public schools where agriculture shall be taught as a science and an art, are incalculable. There can be applied the well settled principles of science, in the invention and introduction of improved farm implements. There, the nature and qualities of soils can be learned, with the best methods of renovating and improving them. There, the physiology of plants, and the nature and habits of the whole vegetable kingdom, can be made thoroughly understood. There will philosophy, chemistry, botany, mineralogy and geology, unite in their contributions, to the advancement of man's highest interest. There, the principles of mechanics can be taught, and the inventive genius of our country elicited. There, can be learned the science of entomology, or the nature and habits of the various tribes of insects, that prey upon and often destroy the farmer's hopes; with the best remedy or preventives for such depredations. In schools of this kind might also be taught the science of veterinary surgery, or the nature of the diseases of domestic animals, and the remedies. By a general diffusion of knowledge on this subject, thousands, yea, tens and hundreds of thousands, might annually be saved to the community, that is now lost through a miserable, beggarly system of quackery.

Much more might be said of the advantages to be derived from institutions of this kind, were it deemed necessary. That they are sources of much public good, fountains from which flow health, wealth, and all those attendant blessings which enrich a country and ennoble the human species, cannot be doubted by any that have examined and reflected upon their utility; or have witnessed or become conversant with their operation and effects in Europe. There they are no longer considered experiments. France has long had her schools for the promotion of agriculture and the mechanic arts. In Prussia, where perhaps as much or more is doing to promote the cause of science, at perent, as in any other country, agricultural schools are founded and supported by the government. Germany, too, has her schools devoted to the improvement of the soil and the mind. And the advanced state of her agriculture and of science, within her borders, attests the wisdom of the policy, and is but an earnest of what might be done in this free country.

The school established by Fellenberg, in Switzerland, the result of the efforts of a single philanthropic and public spirited individual, challenges the admiration and the emulation of the world. His great aim was to "produce *men*, not mere *scholars*. The leading principle of his system is, to unite physical, moral, and intellectual education, and to form all the faculties into one harmonious system, corresponding with the capacities and destination of the individual." Young men are sent to this school from all parts of Europe and even America. Its influence is more or less felt throughout the civilized globe. Cannot the great state of New-York, empire as she is in wealth, population and extent, do as much to promote the diffusion of science, among the productive classes, as has one individual in Switzerland? Will she not awake to her interest and her honor, and do as much as has been done by the despotic governments of Europe? The character of our agricultural community will never be elevated much above what it now is, unless schools are established particularly adapted to that object. And how shall schools be established, except through the munificence of the state? It has ever been the policy of all wise governments to promote the sciences and encourage the arts. And shall agriculture, the greatest and most complicated of all the sciences, and the most useful of all the arts, be left to languish and decline, or even to remain stationary for want of the fostering care of government?

Another method by which our interests can be promoted, is through the agency of societies. That united and concentrated effort can do more towards accomplishing any general object, than the exertions of insulated individuals, does not admit of a doubt. We have evidence of it in the associations that are almost daily formed, to promote the great objects of humanity and benevolence. The awarding of premiums for any improvements that may be made in labor-saving implements, or machinery, and also for the production of the greatest results in tillage with the least expense, would give an impulse, and excite a general spirit of rivalry and competition, that could be productive of the most beneficial consequences. Does any one doubt the utility of these associations? Let him turn his attention to those countries in Europe where they have been established, and see the cold and barren earth made warm and fruitful, her productions quadrupled, and the moral and intellectual condition of the people correspondingly improved. Look at those districts in our own happy land, where attention has been paid to this subject, and societies of this kind kept organized, and compare them with those where it has been entirely neglected. The contrast is too striking, and the difference in the general appearance of the country—the wealth of its inhabitants, and the social condition of the people, is too great to require one more word by way of illustration.

But here again a difficulty presents itself. Societies of this kind cannot be maintained without funds, and funds cannot be obtained without the aid of the state. The question then arises, will the state contribute to an object so nearly allied with its glory and prosperity? The present is a time auspicious for making such provision, for the advancement of this cardinal interest, as shall augment the wealth, promote the happiness, and redound to the honor and glory of this great state.

The state is about to receive from the United State's Treasury, nearly six millions, as her quota of the surplus revenue. Why not appropriate a part of the avails of this sum for the endowment of a State Agricultural School, and for the encouragement of societies? The amount so appropriated, would soon be returned with compound interest into the treasury, by the increased revenue that would be derived from canal tolls and taxes, in consequence of the stimulus that would be given to agricultural industry. Soon would the productions of the state be quadrupled; and instead of the greatest agricultural country in the world, being importers of breadstuffs for our own consumption, we should be exporters, and to a large amount. It is fact, that speaks volumes in favor of an increased attention to this subjest, and of the necessity of improvement, that we, who but a few years since threatened to reduce Great Britain to a state of starvation, are now importing, not only immense quantities of her breadstuffs, but even hay, to supply a population scattered over an immense territory of the most fertile lands beneath the sun.

It is perfectly proper, that in accordance with the publicly expressed voice on this subject, that a part of this money should be appropriated to the improvement and promotion of common schools—those nurseries of virtue and intelligence. In no way, perhaps, could so general a benefit be derived from it; but, Mr. President, I do most solemnly protest against our incorporated academies and colleges receiving these funds, to the entire exclusion of schools of agriculture. This consideration appeals to our sense of justice and equity, with great force. It arouses our feelings of philanthropy and patriotism, and calls up the republican principle, that government is instituted for the good of the many, and not the few. Why, I ask, should institutions already endowed, and whose benefits are enjoyed mainly by the aristocratic few, receive this boon, to the exclusion of that great body of the people, whose interest is identified with the successful cultivation of the soil?

Demonstrations too of public opinion have long and often been made on this subject. And we all profess to be governed more or less by public opinion, especially when acting in a public capacity. Convention after convention has been held in this hall—resolution after resolution has been passed by the people in the several counties of the state—petition after petition, without limitation as to the number of signatures, have been presented to successive legislatures; and all asking for an appropriation for this great cause. Report after report has been made in favor of this subject, by committees of each house, and still, for want of time, or understanding, or some other cause, it has not been brought to a successful result. And while on this subject, I cannot but notice with respectful acknowledgments, the situation of that public sentiment, in the enlightened view that was taken of this subject, in two successive messages by the present executive of the state. In touching upon this topic, his language is so happy, and his deductions so clear, that I will take the liberty of presenting to the convention the following extracts:—In 1833, he says—"From the consideration of these important subjects, I pass to one of *greater* and more general interest, lying more directly within the reach of our legislative action, and demanding from us a particular attention. Agriculture was undoubtedly the primitive pursuit of man in a civilized state of society, and seems to be indicated to them by Heaven, as their best employment. Vigor of body and purity of mind are eminently enjoyed by the husbandman. Without meaning to disparage any class of men, or to deny a due proportion of public virtue to all, history and experience warrants the assertion, that the cultivators of the soil have ever been among the first to cherish, and the last to abandon free institutions. It is not, however, for this reason that agriculture presents peculiar cliams for your guardianship. It not only furnishes occupation to a much greater portion of our citizens than any other department of labor, but it supplies the materials for all others. It must be regarded as a matter of some surprise, that an employment in which so great a number of the human family are directly engaged, to which all look for their daily bread, and upon which commerce, manufactures and the mechanic arts—indeed, all the various pursuits of mankind—so necessarily depend, should not have risen to a still higher consideration than it has yet attained, and received from those entrusted with power of legislation, more liberal aids.

"The numerous agricultural societies organized in the several counties in this state, in consequence of our legislation, flourished for a season, then languished, and are now generally dissolved. The interest of agriculture was, to a considerable extent, promoted by these societies. The contributions from the public treasury, distributed principally in premiums, gave a sudden impulse to agricultural industry, and induced many laudable efforts among farmers, not only to excel in their productions, but to introduce valuable improvements in husbandry; yet it has been questioned whether the benefits derived were of such an extensive and abiding character, as might have been realized by a different application of the fund derived from the government Agriculture is a science as well as an art: and both must be systematically cultivated and widely disseminated, before it would attain a high degree of improvement. The general intelligence and individual enterprise of those devoted to the pursuit, have carried the art as far, perhaps, as could reasonably be expected without a better knowledge of the sciences connected with it. With a salubrious climate, and fertile soil; with extensive regions but partially brought under the power of cultivation; with rising manufactures and a flourishing commerce, demanding the surplus produce of husbandry; with a population full of enterprise, and distinguished for native skill and practical talents, we may reasonably expect great advantages from the cultivation and diffusion of the sciences connected with the art. The *subject appears to me in every respect worthy of your attention, and to merit a liberal encouragement.*"

In the annual message of 1834, we find the following language:—"The subjects connected with the business pursuits of our constituents, next claim our notice. Among these, agriculture stands first in the order of nature, as well as in the rank of importance. It contributes so essentially to wealth, that the early writers on political economy regarded it as the only source of wealth. It furnishes the means of human subsistence, and supplies most of the materials for manufactures, and the chief articles of commerce. When the labor of the farmer is bountifully rewarded, all other kinds of industry partakes of its success; whatever therefore, is done by the government for the agricultural interest, redounds to the benefit of every other. There is no other occupation which is so diversified in its objects, and requires such various knowledge to conduct it skilfully, as that of agriculture. This knowledge results from experiments in all climates, soils and seasons, and is consequently to be derived from different countries It receives large contributions from the mechanic arts, and from the science of botany, chemistry and natural philosophy. The patronage of the government can scarcely be directed to a more useful object, than furnishing the means of collecting information on this subject, and of spreading it among the agricultural population. A board composed of practical farmers and men of scientific attainments, would possess great facilities for concentrating the scattered information; and the best means of disseminating it among the people, would be afforded by a public institution, under the direction of such a board, when agriculture should be taught as a science, and practically illustrated as an art. The general interest felt for this branch of industry, will recommend it to your favor; and its intimate connection with the permanent prosperity of the state, will make you desirous of contributing to its advancement."

Thus you see, Mr. President, that in accordance with an enlightened public sentiment, has the attention of our legislature been recently called to this subject. Subsequent messages have, in substance, reiterated the above sentiments. It is to be hoped, then, that the legislature will sustain the governor, and respond to the manifestations of public sentiment, by adopting a wise and liberal policy with regard to this important interest of the community.

One more view of this subject, Mr. President, and I close. We come not before the constituted authorities of the state as pitiful beggars at the foot of a throne, nor are we yet reduced to quite that state of vassallage and degradation, as are the boors and feudal serfs of the more despotic governments of Europe; but we appear as the lords and sovereigns of the land, asking, in most respectful terms, "nothing but what is strictly right, unwilling to submit to any thing that is wrong." We are the source of all political power, executive, legislative, and judicial. We constitute the great body of the people—the sovereignty of the land. We bear the burthens of government in peace, we are its shield and defence in war. It is to be hoped, then, that an interest thus important, will receive that attention and fostering care, from the constituted guardians of our rights, that the prosperity of the whole community so imperatively demands. Let the empire state, justly proud of her march in internal improvements, and her splendid monuments of art, also lead the way, and set an example worthy of her sister states, in the encouragement and advancement of agriculture—the only true source of wealth—and soon will the entire face of the country be changed. Our fertile valleys will double their increase, our barren plains become productive, our swamps and marshes be reclaimed, the "desert and solitary place be made glad, and the wilderness blossom as the rose."

MANAGEMENT OF CLAY FARMS.

BEATSON'S SYSTEM.

Knowle Farm, in the neighborhood of Tunbridge Wells, which was a few years ago in the occupation of the late Gen. Beatson, contains about 300 acres of land, of which 112 are arable, and is described as abounding with clay, and retentive of surface moisture, but when dried by the summer heat, it becomes as hard as a brick, and impervious to the plough, unless with a great power of animal exertion, particularly as the general mode is to plough deep. The established rotation in that part of Kent and the neighboring portion of Sussex, is fallow, wheat, and oats, with occasionally clover and rye-grass; and the husbandry appears to have remained unaltered for many ages, with the single exception of substituting lime for manure instead of marl. Upon this system the farm was managed during the General's absence, while governor of the Island of St. Helena; and finding on his return, in the year 1813, "that he had no cause to boast of its profit, he resolved to trace the whole progress of the operations, from the commencement of the fallow to the close of the rotation;" the result of which was, that "having made a series of experiments, to which he devoted his attention during five years, he determined upon *the total abolition of fallows.*"*

In order to effect this, he adopted several new implements, chiefly of his own invention, for a description of which we must refer to his "New System of Cultivation," as we have only seen the scarifier in use. This is of a light construction, and certainly performs well; though upon land

---

* His experiments were extended to various objects besides the working of the land; particularly to the combinations of different kinds of manure, and the burning of clay, (for which, see our vol. i. chaps. 16 and 17;) but our present extracts only extend to the subject of fallowing, the charges of which he states to have amounted to £16 per acre, thus:—

Labor, breaking up the clover ley and 3 subsequent ploughings,	£3	12	6
Eleven harrowings at ten acres per day,	0	9	0
Manure, one and a half wagon load of lime, between the third and fourth ploughings,	7	10	0
Carting and spreading ditto,	0	6	0
Seed, two and a half bushels of wheat at 10*s*.	1	5	0
Sowing and rolling,	0	1	6
Rent and taxes for the year of fallow,	1	10	0
Ditto for the year of crop,	1	10	0
	£16	4	0

such as that described by the general, it is worked by a pair of horses, and sometimes more, instead of one.

He conceived that the grand source of all the heavy expenses of the old method might be traced to the fallow itself, and to the mode of preparing it—"by bringing up immense slags with the plough, by reversing the soil, and thus burying the seeds of weeds that had fallen on the surface, by which a foundation is laid for all the subsequent laborious and expensive operations." To avoid these, he therefore thought it necessary to proceed in a different manner—"to only break and crumble the surface soil, to any depth that may be required; to burn and destroy the weeds; after which he would have the land in a fine and clean state of pulverization, and in readiness for receiving the seed, without losing a year's rent and taxes; and all this at a mere trifle of expense, when compared with that which is incurred by a fallow."

In pursuance of this, he reduced the ploughing to a single operation at the depth of four inches. The chief use, indeed, which he made of the plough was to open furrows at twenty-seven inches apart, which was performed by a couple of horses at the rate of three acres per day, and was merely intended to prepare the land for the scarifiers, "which, by passing twice across these furrows, loosen all the stubble and roots of weeds, which are afterwards, with a small portion of the soil, placed in heaps and burned." By these means, together with the more frequent repetition of the horse-hoeing, and the introduction of the row culture, the General assures us "that his lands were rendered much cleaner, and yielded better crops than they did formerly, after all the heavy expenses of lime and fallows."[*] He indeed, states, that these operations produced the effect of pulverization to the depth of six or seven inches, and their expense was—

	s.	d.	s.	d.
Five scarifyings, with a single-horse implement, at 1s. 8d per acre,	8	4		
Two harrowings, at 10½d	1	9		
			10	1

that the whole charge of cultivation, under a four-course system upon this plan, including rent was—

		£.	s.	d.
Tares, beans, pease, &c. per acre,		5	0	0
Wheat,	"	5	0	0
Oats and barley,	"	3	13	6
Clover and rye-grass,	"	2	15	0
		16	8	6

thus only amounting to a trifle more than that of the fallow upon the former plan; that land cultivated upon his farm in this manner has yielded 460 sheaves of wheat per acre, whilst the average produce of the other fields did not exceed 360; and that the *difference in favor of the new method amounts, upon an average*—when wheat is at 10*s* the bushel—to £350 per annum upon the cultivation of 100 acres.—*British Husb.*

OUTLINE OF THE FIRST PRINCIPLES OF HORTICULTURE

BY JOHN LINDLEY, F. R. S., &c. &c.

(*Continued from page* 92.)

VI. FLOWERS.

146. Flowers consist of two principal parts, viz: *floral envelopes* (149.) and *sexes* (VII.)

147. Of these, the former constitute what is popularly considered the flower; although the latter are the only parts that are absolutely essential to it.

148. However different they may be in appearance from leaves, they are all formed of those organs in a more or less modified state, and altered in a greater or less degree by mutual adhesion.

149. The floral envelopes consist of two or more whorls of transformed leaves; of which part is calyx, its leaves being called sepals, and part corolla, its leaves being called petals.

150. The sexes are also transformed leaves. (187.)

151. The calyx is always the outermost, the corolla is always the innermost whorls; and if there is but one floral envelope, that one is calyx.

152. Usually the calyx is green, and the corolla colored and more highly developed; but the reverse is frequently the case, as in Fuchsia, Ribes sanguineum, &c.

153. A flower being, then, an axis surrounded by leaves, it is in reality a stunted branch; that is, one the growth of which is checked and its power of elongation destroyed.

154. That flowers are stunted branches is proved, firstly, by all their parts, especially the most external, occasionally reverting to the state of ordinary leaves; secondly, by their parts being often transformed into each other, and, thirdly, by the whorls of flower-buds being dislocated and actually converted into branches whenever any thing occurs to stimulate them excessively.

155. Their most essential distinctive character consists in the buds at the axillæ of their leaves being usually dormant, while those in the axillæ of ordinary leaves are usually active.

156. For this reason while leaf-buds can be used for the purpose of propagation, flower-buds cannot usually be so employed.

157. Being stunted branches, their position on the stem is the same as that of developed branches.

158. And as there is in all plants a very great difference in the developement of leaf-buds, some growing readily into branches, others only unfolding their leaves without elongating, and many remaining altogether dormant, it follows that flower-buds may form upon plants of whatever age and in whatever state.

159. But to produce a general formation of flower-buds it is necessary that there should be some general predisposing constitutional cause, independent of accidental circumstances.

160. This predisposing cause is the accumulation of sap and of secreted matter.

161. Therefore whatever tends to retard the free flow of sap, and causes it to accumulate, will cause the production of flower-buds or fertility.

162. And on the other hand, whatever tends to produce excessive vigor causes the dispersion of sap, or prevents its elaboration and causes sterility.

163. Transplantation with a partial destruction of roots, age, or high temperature accompanied by a dry atmosphere, training obliquely or in an inverted direction, a constant destruction of the extremities of young growing branches, will all cause an accumulation of sap, and secretions; and consequently all such circumstances are favorable to the production of flower buds.

164. But a richly manured soil; high temperature, with great atmospheric humidity, or an uninterrupted flow of sap, are all causes of excessive vigor, and are consequently unfavorable to the production of flower-buds.

165. There is a tendency in many flowers to enlarge, to alter their colors, or to change their appearance by a transformation and multiplication of their parts, whenever they have been raised from seeds for several generations, or domesticated.

166. The causes of this tendency are probably various, but being entirely unknown, no certain rules for the production of varieties in flowers can be laid down, except by the aid of hybridising (210.)

167. It often happens that a single branch produces flowers different from those produced on other branches. This is technically called a sport.

168. As every bud on that branch has the same specific vital principle, (113.) a bud taken from such a branch will produce an individual, the whole of whose branches will retain the character of the sport.

169. Consequently, by buds an accidental variety may be made permanent, if the plant that sports be of a firm woody nature. (98.)

170. As flowers feed upon the prepared sap in their vicinity, the greater the abundance of this prepared food, the more perfect will be their developement.

171. Or the fewer the flowers on a given branch the more food they will severally have to nourish them, and the more perfect will they be.

172. The beauty of flowers will therefore be increased either by an abundant supply of food, or by a diminution of their numbers, (thinning) or by both. The business of the pruner is to cause these by his operations.

173. The beauty of flowers depends upon their free exposure to light and air, because it consists in the richness of their colors, and their colors are only formed by the action of those two agents. (281.)

174. Hence flowers produced in dark or shady confined situations are either imperfect, or destitute of their habitual size and beauty.

175. Double flowers are those in which the stamens are transformed into petals; or in which the latter, or the sepals, are multiplied. They should not be confounded with *proliferous*, (183.) and *discoid compound flowers*, (184.)

176. Although no certain rules for the production of double flowers can be laid down, yet it is probable that those flowers have the greatest tendency to become double, in which the sexes are habitually multiplied.

177. In icosandrous and polyandrous plants either the stamens or the pistilla are always very numerous when the flowers are in a natural state; and it is chiefly in such plants that double flowers occur, when they become transformed.

178. It is therefore in such plants that double flowers are to be principally expected.

---

[*] On this subject he also observes, that "those who plough deep, and bury the seeds of weeds by the first ploughing, are not aware that, by this outset of their fallow, they lay the foundation of a great deal of labor and mischief, and bring upon themselves the absolute necessity of a fallow, as the only means of eradicating the progeny of those seeds which they have inadvertently deposited deep in the soil. Now, if the whole of the stubble and its roots, with a small portion of the surface soil, *which must contain those seeds*, be collected and destroyed by fire, it is reasonable to suppose that lands might be as effectually cleared of weeds in this manner, as by a summer fallow; besides they would have the benefit of a considerable portion of ashes. Perhaps, also, this mode of burning might have a tendency to prevent the disorders of smut and blight; disorders with which my crops have not been in the smallest degree affected."—2d edit. p. 90.

179. In proportion as the sexes of flowers habitually become few in number, do the instances of double flowers become rare.

180. Double flowers are therefore least to be expected in plants with fewest stamens.

181. Whenever the component parts of a flower adhere by their edges, as in monophyllous calyxes, monopetalous corollas, and monadelphous, or di-, or poly-adelphous stamens, the tendency to an unnatural multiplication of parts seems checked.

182. Therefore in such cases double flowers are little to be expected; they are, in fact, very rare.

183. Proliferous flowers are those in which parts that usually have all their axillary buds dormant, accidentally develope such buds; as in the hen and chickens daisy, in which the bracteæ of the involucrum form other daisy-heads in their axillæ; or, as in certain roses, in which the carpellary leaves develope leaf-buds in their axillæ; so that the flower becomes a branch, the lower leaves of which are colored and transformed, and the upper green, and in their ordinary state.

184. Discoid compound flowers are those in which the central florets of a flower-head acquire corollas, like those of the circumference, as in the Dahlia; the cultivated variety of which should be called discoid, and not double.

185. These two last are so essentially different from double flowers, that whatever laws may be supposed to govern the production or amelioration of double flowers, can have no relation to proliferous or discoid compound flowers.

VII. SEXES.

186. The sexes consist of two or more whorls of transformed leaves, of which the outer are called *stamens*, (188) and the inner *pistillum*. (191)

187. They are known to be modifications of leaves, because they very frequently are tranformed into petals which are demonstrably such (149.); and because they occasionally revert to the state of leaves.

188. The stamens bear at their apex an organ called the *anther*, which contains a powder called *pollen*.

189. When the anther is full grown, it opens and emits the pollen, either dispersing it in the air in consequence of the elasticity with which it opens; or depositing it upon the stigma (191.); or exposing it to the action of wind, or such other disturbing causes as may liberate it from its case.

190. The pollen consists of exceedingly minute hollow balls, or cases, containing myriads of moving particles, which are the fertilizing principle of the stamens.

191. The pistillum has at its base one or more cavities or *cells*, in which bodies called *ovula* are placed; and at its apex one or more secreting surfaces called *stigmata*.

192. The ovula are the rudiments of seeds.

193. If the fertilising powder of the pollen come in contact with the stigma, the ovula in the cells of the pistillum are vivified, and become seeds.

194. But if this contact does not take place the ovula cannot possibly be vivified, but shrivel up and perish.

195 The phenomenon of vivification takes place in consequence of the descent of a portion of the moving particles (190.) of the pollen into the ovula, where such particles form the commencement of future plants.

196. In wild plants a stigma is usually acted upon only by the pollen of the stamens which belong to it.

197. In this case the seeds thus vivified will, when sown, produce new individuals, differing very little from that by which they were themselves produced.

198 And, therefore, wild plants are for the most part multiplied from generation to generation without change.

199. But it is possible to cause deviations from this law, by artificial means.

200. If the pollen of one species is placed upon the stigma of another species, the ovula will be vivified; and what is called a *hybrid* plant will be produced, by those ovula when they shall have grown to be seeds.

201. Hybrid plants are different from both their parents, and are generally intermediate in character between them.

202. They have little power of perpetuating themselves by seeds; but they may if woody be perpetuated by cuttings (312), buds (354) scions (335.), &c.

203. Therefore, no hybrids but such as are of a woody perennial character can be perpetuated.

204. It usually happens that the hybrid has the constitution and general aspect of the polliniferous parent; but is influenced in secondary characters by the peculiarity of the female parent.

205. This should always be borne in mind in procuring new hybrid plants.

206. Really hybrid plants must not be confounded with such as are spurious, in consequence of their origin being between two varieties of the same species, and not two species of the same genus.

207. Hybrid plants, although incapable of perpetuation by seed, are often more abundant flowerers than either parent.

208. This is, probably, connected with constitutional debility, (162.)

VIII. FRUIT.

209. Fruit, strictly speaking, is the pistillum arrived at maturity.

210. When the calyx adheres to the pistillum and grows with it, to maturity, the fruit is called *inferior;* as the apple.

211. But when the pistillum alone ripens, there being no adhesion to it on the part of the calyx, the fruit is called *superior;* as the peach.

212 The fruit is, therefore, in common language, the flower, or some part of it, arrived at its most complete state of existence; and, consequently, is itself a portion of a stunted branch. (153)

213. The nature of its connection with the stem is therefore the same as that of the branches with each other, or of leaves with their stem.

214. A superior fruit, consisting only of one, or of a small number of metamorphosed leaves, has little or no power of forming a communication with the earth and of feeding itself, as real branches have, (89.)

215. It has also very little adhesion to its branch; so that but slight causes are sufficient to detach it from the plant, especially at an early age, when all its parts are tender.

216. Hence the difficulty of causing peaches and the like to *stone*, or to pass over that age, in which the vascular bundles that join them to the branch become woody, and secure them to their place.

217. For the same reason they are fed almost entirely by other parts, upon secreted matter which they attract to themselves, elaborate, and store up in the cavities of their tissue.

218. The office of feeding such fruit is performed by young branches which transmit nutriment to it through the bark, (69.)

219. But as young branches can only transmit nutriment downwards, it follows that unless a fruit is formed on a part of a branch below a leaf-bud, it must perish,

220. Unless there is some active vegetation in the stem above the branch on which it grows; when it may possibly live and feed upon secretions attracted by it from the main stem.

221. But inferior fruit, consisting at least of the calyx in addition to the pistillum, has a much more powerful communication with the branch; each division of its calyx having *at least* one bundle of vascular and fibrous tissue, passing from it into the branch, and acting as a stay upon the centre to prevent its breaking off.

222. Such fruit may be supposed much more capable of establishing a means of attracting secretions from a distance; and consequently, is less liable to perish from want of a supply of food.

223. It is therefore not so important that an inferior fruit should be furnished with growing branches above it.

224. Fruit is exclusively fed by the secretions prepared for it by other parts; it is therefore affected by nearly the same circumstances as flowers.

225 It will be large in proportion to the quantity of food the stem can supply to it: and small in proportion to the inability of the stem to nourish it.

226. For this reason, when trees are weak they should be allowed to bear very little, if any, fruit; because a crop of fruit can only tend to increase their debility.

227. And in all cases each fruit should be so far separated from all others as not to be robbed of its food by those in its vicinity.

228. We find that nature has herself in some measure provided against injury to plants by excessive fecundity, in giving them a power of throwing off flowers, the fruit of which cannot be supported.

229 The flavor of fruit depends upon the existence of certain secretions, especially of acid and sugar; flavor will, consequently, be regulated by the circumstances under which fruit is ripened.

230. The ripening of fruit is the conversion of acid and other substances into sugar.—*(To be Continued.)*

Young Men's Department.

PRIZE ESSAY,

For which the first Gold Medal was awarded to Miss Laura S. Smith, of Geneseo, Livingston county, at the late annual examination in the Albany Female Academy:

THE INFLUENCE OF SCIENCE AND LITERATURE UPON INDIVIDUALS AND COMMUNITIES.

Knowledge exerts a powerful influence over the condition of mankind. It constitutes the great difference between the savage and civilized, the degraded heathen and the honored philosopher. It is not only "power," but pleasure, wealth, and glory. The bright halo, which surrounds European nations, and which encircles with almost equal brilliancy the rising empire of the west, is an emanation from the knowledge gathered by the labor of centuries. The present age is characterized by general improvements in the arts, advancement of society, strength, refinement, and elevation of intellect. The spirit of analysis and investigation, which are abroad in the land, have enabled man to pierce far into the depths of science, and unfold the mysterious laws which govern the universe. By an acquaintance with the general rules, which govern matter and mind, the power of man over the material and immaterial universe, is greatly extended, and, by a cultivation of his taste and imagination, his nature is polished and refined. To *acquire* a knowledge of the laws which govern matter and mind, patient and long continued investigation is indispensable. A large collection of facts must be made before the mind can arrive at correct conclusions, or ascertain the principles upon which nature acts.

To bring the sciences to their present state of perfection, man has entered the burning and sandy plains of the equatorial regions, exposed to danger from wild and ferocious beasts, and from his fellow-man, more savage than they. He has gone from the land of the orange and the vine, to the home of the storm and the tempest, the dwelling of a winter that knows no spring. He has traversed broad vallies, and climbed barren and rugged eminences. Exposed to storm and wind and raging tempests, he has pursued his onward course reckless of danger; he has disregarded the enticements of society, forsaken the friends and companions of his youth, and sought, in his lonely chamber, during the brightness and beauty of the day, and the darkness and stillness of the night, for eternal and immutable truth. Disregarding opposition and prejudice, sacrificing his own natural feelings of repugnance, he has visited the solitary grave and disintered its silent occupant, to discover the matchless skill displayed in the structure of the human frame. But the results of his labor are glorirous, the triumphs of the physical sciences are magnificent. They have enabled man to command the elements, and convert them into servants to do his bidding, to ride upon the trackless surface of the mighty ocean, and guide with certainty the stately ship to its destined port; to rise beyond the heights where the proud eagle loves to soar, and while sailing in the ethereal regions, to contemplate the beauties of his native earth. By the aid of science, they who pant beneath the burning rays of an equatorial sun, refresh themselves upon the ices of the polar regions; and they who dwell in barren and desolate countries, feast upon the delicacies which nature loves to pour upon the temperate and torrid zones. Physical science has formed the printing press, which, like a mighty luminary, is sending forth its benign beams upon the stormy surface of the moral deep, and shining into its darkest, and lowest recesses. Man has been enabled to analyze substances before deemed elementary, to melt the most refractory, and light into a blaze the most dense. The brilliant lights which existed in former days only in fairy visions have now become reality; they blaze along our streets and illumine our splendid mansions. Time and space are annihilated; with almost breathless speed the self-propelling car moves onward to its place of destination, speedy and powerful, yet yielding implicit obedience to the directing hand. Broad lakes and majestic rivers are covered with beautiful and rapidly moving steamboats, pursuing their onward course, independent alike of wind and tide. Diseases which formerly spread desolation and despair wherever they appeared, now yield to mild and simple remedies prepared by the scientific. Not satisfied with researches into the mysteries of this earth, man has entered the regions of space, and wandered far over its wide and trackless domain He has ascertained the distance, magnitude and motion of those bright and glorious orbs, which roll in an unchanging course around the dazzling king of day. He has gazed with eagle eye upon that shining luminary, and ascertained with mathematical acccuracy his distance, dimensions and exact situation amid the wheeling spheres which surround him. He has, by accurate observation, learned the situation of multitudes of those distant stars which twinkle in the blue vault of heaven. Thus in a thousand ways have the physical sciences ministered to our wants and excited our admiration.

Investigations of the immutable and eternal truths which form the exact sciences, expand and strengthen the mental faculties. Owing to the nature of the proof, the precision of the definitions, and the caution requisite to proceed one step in the argument, these sciences are admirably calculated to form habits of correct and systematic thinking, and sound reasoning. When combined with the physical sciences, they enlarge infinitely our conceptions of that God who is the origin of all truth.

Knowledge of the laws which govern the human mind, is of still greater importance, than attainments in the physical or exact sciences, and promises, if attained, more splendid results. The mind of man is the recipient of all his knowledge, and the laws which govern it, are of the greatest importance to all classes of society. As the mental faculties are not cognizable by the external senses, and the principles by which they are governed are not capable of demonstration, an acquaintance with them has been deemed impossible. But the little advancement made by the ancients, is owing rather to their mode of investigation, than to any real difficulty of the subject. Formerly philosophers speculated upon the essence of mind, and the manner in which it acts, and not until recently have they entered upon its investigation, by collecting facts and deducing principles therefrom. Mental science is even now little understood, but the acquisitions already made are sufficient to afford great advantage to all who would influence the minds of others, or improve their own. By dwelling upon the operations of mind, man becomes accustomed to the consideration of abstract subjects, a new field of knowledge is opened to him, in which he can luxuriate, whether in a bustling crowd, or alone in silence and darkness.

By pursuing the sciences, man is rendered a systematic thinker, a close reasoner, and an accurate investigator. His memory is strengthened by retaining facts, and his powers of association and abstraction are fully developed by exercise. But though he may have made great advancement in science, and by imitating the operations of nature, may have acquired extensive power over the material world, his manners will be unpleasing if the finer feelings of the soul are not cultivated. The mind which has received strength and precision by attending to scientific subjects, requires to be embellished and ornamented by the cultivation of the taste and imagination. Science forms a solid base, but the temple is incomplete, without the beautiful and ornamental decorations of literature. The individual whose taste has been sufficiently cultivated to relish the productions of mind, finds in them the most agreeable relaxation from the active duties of life; they are companions in his lonely hours and consolations in affliction. He feels a thrilling pleasure when listening to the eloquence of the orator, or perusing the works of the gifted author; he discovers beauties which are concealed from the minds of other men. Nature's lovely scenery fills him with delight. The broad expanse of heaven, the romantic vale and "cloud-capt eminence," the foaming cataract, and the "dark, unslumbering" ocean; all fill his bosom with the most rapturous emotions, for his feelings have received a gentler tone from cultivation. The rich and varied stores of literature, accumulated by the brilliant geniuses of all preceding ages, are open to his admiration. He lives with those who have been; he holds communion with the master spirits of other times, and finds in them a congeniality of feeling he may seek in vain among the living. He is never lonely, for his mind has sources of enjoyment within itself. When age has dimmed the lustre of his eye, and rendered dull the acute perception of his ear; when the pleasures of sense have ceased to gratify, and all the fond visions of youth have vanished; when ambition has lost its enticing sway, and youthful joys, and manhood's hopes, have proved alike unsatisfying, then the literary man has a never failing fountain of delight. His volumes are still left, and his enjoyment of their treasures increases by indulgence. The beautiful sentence, the classical allusion, and the sublime sentiment, still awaken the purest emotions of pleasure.

If the literary man become an author, he exerts a mighty influence over his fellow-men. Monarchs may command the wealth and labor of their trembling subjects; generals may lead thousands to glory or an untimely grave; but the author rules the *mind*, and with a sceptre more powerful than Cromwell or Bonaparte ever swayed. A nation may acquire honor by its extensive conquests, its unlimited commerce, and boundless wealth; it may, by superior strength, exact the submission of many surrounding countries; it may be celebrated for the bravery of its warriors, the skill of its generals, and the vastness of its internal resources; its sails may whiten every port, and its flag wave triumphantly over sea and land; but, though these may gain the applause of the multitude, intellectual greatness, the brilliant productions of mind, ever receive the highest admiration of the soul, the purest homage of the heart. The literary works of a nation are the only lasting monuments which can be reared to its memory: the country itself may be desolate, the lights which once shone brightly in its halls of pleasure may be extinguished forever; the people may be degraded and oppressed, or even extinct, yet the country will live in its literature "till time shall be no more." When the beautiful edifices, the splendid temples and stupendous structures of fallen Greece are entirely destroyed, by the relentless hand of time, its literature will receive the just tribute of honor, now paid it so freely, by all nations. The scientific acquisitions of a country soon mingle with the common mass of knowledge, but its literature is exclusively its own. The writings of Homer will never cease to spread a bright halo around his native land; and those of Virgil will be associated with Rome until the "last syllable of recorded time." Literary men exert a no less powerful influence over their contemporaries, than over succeeding generations. The man of taste forms the public opinion and guides its decisions; his mind is the model for thousands.

Literature possesses a remarkable ascendency over the morals of a people. The pure and elevated feelings of a community whose taste is cultivated, and imagination refined, can never allow those grosser crimes which fix a foul stain upon a nation's glory. The literary find no pleasure in those scenes of licentiousness, in which so many degraded beings love to mingle.

Thus does literature delight and captivate the intellectual being, and elevate him to the head of created intelligences. It perpetuates the refinement from which it springs, affords pure and lasting enjoyment to man, and immortalizes a nation. Physical science improves man's condition by the power it confers over the material universe; literature refines and polishes the manners and feelings. The study of *science* strengthens, that of *literature* elevates and purifies, the intellect. Truth is the presiding genius of science, beauty of literature. The former is the handmaid of the *useful*, the latter of the *fine* arts. Both are requisite for the full development of the character. If the sciences are too exclusively pursued, they unfit man for society. The mind accustomed to dwell upon abstract and general principles, without the cultivation of the taste and imagination, is not susceptible of the softer and gentler feelings, so necessary in the interchange of thought and sentiment. On the contrary, the study of literature only, renders a person too imaginative and too fanciful for the ordinary avocations of life The luxurious and beautiful foliage of the tree, becomes too ponderous for the slender trunk, and the first rude wind which sweeps by, prostrates it to the earth and destroys its exquisite loveliness. He who lives too exclusively in the ideal world created by his fertile imagination, is not prepared to enter the scenes of life, where he will be exposed to hardships, misfortunes and unkindness.

The *combination* of science and literature alone form a perfect character. Their *united* influence is requisite to elevate society to the greatest height of civilization and refinement. Both should receive a due proportion of attention, in all systems of education in which the full development of the intellectual faculties is desired, rather than the production of a particular genius. The mind should not only be rendered systematic, accurate, and powerful; but a correct taste should be formed, and the imagination properly directed; more particularly in *this* age, when the triumphs of science are attracting the attention of all, and withholding it from the more quiet walks of literature. Man should be taught to discern the really beautiful and sublime, to estimate the productions of intellect, and enjoy the enduring pleasure which they afford.

When both science and literature receive the attention they respectively claim, great and eccentric geniuses may be known no more; the cold, accurate mathematician; the ardent, enthusiastic, sensitive writer; the abstract metaphysician; and the trifling idler, may disappear; but a more noble race, possessing a more sound and healthy intellect, will succeed. Education, instead of producing a sickly and distorted state of the mind, ought to be so directed as to render that invaluable temple, the human soul, perfect in all its various parts. Then would the "power" which knowledge gives be enjoyed to its full extent, not only by individuals, but communities; then would all feel the pleasures which literature scatters so profusely in its variegated pathway, enjoy the wealth which science pours upon a nation, and receive a portion of that glory which beams upon the wise and good of all countries.

HINTS TO MOTHERS.

[*Abstracted from "The Economy of Health."*]

Health.—Without health riches cannot procure ease, much less happiness. It would have been an unjust dispensation of Providence, if gold had been permitted to purchase that which is the poor man's chief wealth, and the want of which reduces the affluent to worse than indigence.

Beauty.—Is beauty inaccessible to sickness? Of all the gifts which heaven can bestow, the "fortune of a face," (so anxiously implored by every "teeming mother" at each successive birth,) is the most doubtful in value. It is a mark at which every malignant star directs its hostile influence—a light that leads both its bearer and its followers more frequently upon rocks and quicksands, than into the haven of repose. Between beauty and disease, there is perpetual warfare. They cannot coexist for any length of time—and the *latter* is sure to be the victor in a protracted contest.

The Greeks taught, that a full expansion of the corporeal organs was essential to a complete development of the mental faculties—in other words, that strength of mind results from, or was intimately associated with, strength of body.

Gymnastic exercises, in youth, and simple food, do more to nurture the virtues of man, than all the precepts of priests and philosophers.

It is during the first and second septenniads, (the first fourteen years of life,) that the foundations of health and happiness, of physical force, intellectual acquirements, and moral rectitude, are laid. It is while the wax is ductile that the model is easily formed. In the early part of childhood, and even in youth, every fibre is so full—so exuberant of vitality, that rest is pain, and motion is pleasure.

It has been shown, that the organ of the mind, in the first stages of our existence, is exclusively occupied with its *animal* functions.

Food.—Errors in diet, in the first septenniad, (first seven years of childhood,) do not consist so much in the quantity of food, as in the provocative *variety* with which the infantile and unsophisticated palate is daily stimulated The rapid growth of infancy requires an abundant supply of plain nutritious aliment; but it is at this early period that simplicity in kind, and regularity in the periods of meals, would establish the foundation for order and punctuality in many other things, and thus conduce to health and happiness during life. In youth, and particularly during the first septenniad, milk and farinaceous substances should form the major part of the diet, with tender animal food once a day. As the teeth multiply, the proportions of the two kinds of sustenance ought gradually and progressively to vary.

Clothing.—As to clothing during the first septenniad, I shall say little more than that it should be warm, light and loose. It will be time enough—alas! too soon,—to imitate the Egyptian mummy, when girls become belles, and boys beaux. I beg, for the first and second septenniads, at least, full liberty for the lungs to take air, the stomach food, and limbs exercise, before they are "cribb'd, cabin'd and confined," by those destructive operatives, the milliner, the tailor, and the boot-maker, *cum multis aliis*, who rank high among the purveyors or jackalls to the doctor and undertaker.

Exercise.—During the first septenniad, exercise may be left almost to the impulses of nature. The great modern error is the prevention of bodily exercise, by too early and prolonged culture of the mind. In the first years of life, exercise should be play, and play should be exercise. Towards the end of the first septenniad, some degree of order or method may be introduced into playful exercise, because it will be essential to health in the second and third epochs. Even in the first epoch, exercise in the open air should be enjoined.

Moral education of the first septenniad.—During the first, and even the second, septenniad, the amount of elementary learning *required* should be less, and the daily periods of study shorter Sport and exercise should be the regular and unfailing premium on *prompt and punctual* acquirement of the lesson prescribed. I am adverse to the system of precocious exercise of the intellect, but an advocate for early moral culture of mind. It is during the first years of our existence that the foundation of *habits* and *manners* is laid; and these will be good or bad afterwards according to their foundations. The best temper, or the purest intention, will not compensate for regularity, industry and punctuality. Habit is the result of *impression*, rather than of *reflection;* and youth is the age for receiving impressions, rather than for exercising the judgment.

[In the first seven years of childhood, the mother should be the *sovereign*, though not the *despot*. She should know how to *exercise* authority, though she should be cautious not to *abuse* it. She should be *mild*, though *firm* and *undeviating*.]

The COMMON SCHOOL ASSISTANT, a monthly publication of eight quarto pages, conducted by J. Orville Taylor, and devoted to the improvement of Common Schools and the education of teachers, is published at No. 71 State-street, at fifty cents per annum, in advance.

RECEIPTS, from June 23 to July 25, inclusive.—Nos. under 10 not noticed.

Brooklyn, L. I.		19	*Glasgow,	Ky.	43	Petersburgh,	Ga.	10
Bell Air,	Md.	11	*Goshen, Or.		30	*Potsdam, St. Law.		36
Buckland,	Va.	11	Halifax,	N. S.	31	Petersburgh,	Ia.	11
Brockville,	U. C.	22	Jacksonboro, Ots.		12	Point Pleasant,	O.	11
*Boston,	Mass.	57	Jackson,	Tenn.	15	*Richmond,	Va.	44
Burneto Creek,	Ia.	11	Kite's Mills,	Va.	11	Rutland, Jeff.		14
Bowman's Mills,	Va.	22	*Keene,	N. H.	47	Scipio,	O.	11
Cornwall,	U. C.	13	Lisbon,	Ct.	50	Springville, Erie,		22
Camden, One.		11	Lake C. H.	Ia.	11	*Stuyvesant, Col.		16
Charlotte C. H.	Va.	11	*Lansingburgh, Rens.		51	Salem,	N. J.	15
Draper Valley,	Va.	11	Montreal,	L. C.	24	*Troy, Rens.		22
*Eugene,	Ia.	51	New Albany,	Ia.	22	*Utica, One.		81
*Frankfort,	Ky.	33	*Newbern,	Va.	22	*Washington,	D. C.	80
*Franklin Mills,	O.	17	Newport,	N. H.	11	York,	O.	13
Gibralter,	Wis. Ter.	22	Pleasant Prairie,	W.T.	17			

Acknowledgments omitted in the June number.

Kirtland Mills.	O.	11	Murfreesboro,	Tenn.	22	Newark,	O.	13
Lebanon,	O.	11	Macedon, Wayne,		33	Newtown,	Pa.	11
Massena, St. Law.		10	Montebello,	Ill.	11	North Penfield, Mon.		11
Middlebury,	Ct.	11	Mayfield,	Va.	11	Newtown,	Ia.	11
May's Lick,	Ky.	11	Marlboro, Ulster,		11	Nichols, Tioga,		11
McNary's,	Ky.	11						

Total volumes subscribed for during last month, 1,055.

* Including former payments.

PRICE CURRENT.

ARTICLES.	New-York. July 23.	Boston. July 19.	Philadel'a. July 24.	Baltimore. July 24.
Beans white, bush........	2 00.. 2 25	1 50.. 2 00	1 37..1 62	1 25..1 50
Beef, best, cwt...........	6 00.. 7 50	5 00.. 7 50	6 00..8 00	7 50..8 00
Pork, per cwt............	9 00..12 00	10 00..12 00	8 00..11 00	6 50..6 75
Butter, fresh, pound,.....	18.. 22	20.. 25	10.. 14	14.. 23
Cheese, pound, ...	8.. 18	9.. 13	10.. 11	9.. 10
Flour, best, bbl......	9 50..11 25	9 50..11 00	8 75..9 50	8 00..9 50
Grain—Wheat, bushel, ..	1 30.. 1 70	....	1 85..2 00	1 50..1 80
Rye, do. ..	95.. 1 00	1 12.. 1 25	1 00..	.. 80
Oats, do. ..	60.. 70	62.. 68	58.. 60	52.. 53
Corn, do. ..	1 04.. 1 06	1 08.. 1 12	1 06..1 10	1 00..1 03
Seeds—Red Clover, lb...	13	13.. 14	9.. 11	7½.. 8½
Timothy, bushel,.	2 50.. 2 75	2 50.. 2 75	1 85	2 00..2 50
Wool—Saxony, fleece, lb.	75.. 80	65.. 70	65.. 73	50.. 60
Merino, lb..... .	50.. 68	40.. 65	40.. 62	45.. 50
1-4 and com. lb...	40.. 60	40.. 45	40.. 44	33.. 36
Sheep, ...	2 50.. 5 00	1 67.. 3 00		
Cows and Calves,........	22 00..42 00	23 00..42 00		
Cotton,...........	8½.. 12	....	9.. 12	10.. 17

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

VOL. IV. ALBANY, SEPTEMBER, 1837. No. 7.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor.*
☞ *Office No. 3 Washington-street, opposite Congress Hall.* ☜
TERMS.—FIFTY CENTS PER ANNUM, TO BE PAID IN ADVANCE.

Special Agents.—JUDAH DOBSON, Philadelphia—Messrs. HOVEY, Boston—ISRAEL POST & Co. Booksellers, 88 Bowery; ALEX. SMITH, Seedsman, Broadway. ALEX. WALSH, Lansingburgh, gratuitous agent. Any gentleman who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

THE GRAIN WORM,

Though of extremely diminutive size, threatens to become the most formidable insect enemy that we have ever had to encounter. Though scarcely preceptible, to the naked eye, such are its numbers, and such its voracity, as to destroy annually thousands, if not millions worth, of the great staple of life. And we are persuaded its ravages are not confined to the wheat crop, but that it preys upon other grains, *which come into head during the existence of the perfect insect, or fly.*

We have seen many preventives recommended, and have tried most of them without success, as various preparations of the seed, applying lime and salt and ashes, when the grain is in ear, &c. We have become convinced too of the fallacy of Bauer's theory, as noticed in the first volume of the Cultivator, that the insect is transmitted through the sap of the plant. Neither steeps nor topical applications will serve any purpose. Nothing, in our opinion, will protect us from this puny enemy, but sowing early in autumn, and late in spring—so that in the first *the grain may become indurated and hard before the fly makes its appearance*, and in the latter so that it *may not come into blossom until after the fly has disappeared.* The insect has progressed from forty to sixty miles a year, south and west, and has reached Maine on the northeast.

From the observations we have been enabled to make of the habits of the insect, we think the fly makes its appearance about the last of June, and continues to deposite its eggs till the 20th or 25th July, making its principal deposites in the first half of July, when late sown autumn, and early sown spring wheat, are in the blossom or milk. Rye sown late in autumn, and oats and barley sown early in spring, are believed also to have suffered materially from the worm; but of this fact we are not yet sufficiently certified, though the worm is often found in these grains. The fly is small and slender, of an ash color, and may be seen towards evening in great numbers on the heads of the grain. It punctures the calix or envelope of the kernel, and deposites its eggs within it, upon the young grain, in the manner that the pea fly punctures the pod, and lodges its egg in the young pea, where it may be often detected when pea is gathered for the table. No topical application, whether liquid or in powder, can reach the ova or insect, within the envelope; and even if the outer surface of the grain is covered with lime, it forms no obstacle to the deposite of the eggs—indeed it has been found that the worm is not destroyed by dry lime, though rolled in it.

We sowed our Italian spring wheat on the 5th of May; and on the 15th July it began to head out. We watched it for a week or twelve days, and until we saw no more of the fly. We found on subsequent examination, that that which first came into head, had from three to five insects in an ear, while that which developed the head latest was generally perfectly sound and untouched. We have examined several fields of spring wheat in Washington county, sown from the 15th to the 23d May, without being able to find any thing of the worm, though the winter wheat there was nearly destroyed by it. These facts seem to warrant the conclusion, that if wheat is sown, in this latitude, after the 15th or 20th May, it will escape the worm.

As the subject is one of deep interest to the whole community, we are desirous of collecting all the information we can, as to the habits of the insect, the first appearance and the disappearance of the fly, the period which the insect exists in the larvæ, or maggot state, and also in the chrysalis. By collating and comparing these facts, we indulge the hope that something may be done to mitigate the evil. We invite post-masters and others to aid us in the investigation, by communicating answers to either or all of the following queries:

1. In what year did the grain worm first make its appearance in your neighborhood?
2. At what time in the season was the fly first noticed, and what was its latest appearance?
3. What per cent damage has it done to the wheat crop the present year?
4. Has early sown winter wheat escaped its ravages?—and if so, at what time was it sown?
5. Has late sown spring wheat escaped its ravages?—and if so, at what time was the seed put in the ground?
6. Have barley, rye and oats been attacked by the worm?—to what extent?—and if yes, at what time were these crops severally sown, or at what time did they come in head?
7. It is believed that the insect changes from the larvæ, or maggot, to the pupa, or chrysalis state, and thence to the imago, or perfect fly; and that in the larvæ it casts its skin, like the silk worm. Can you communicate any facts in confirmation of, or in contradiction to, these suppositions?
8. What are the extreme points, west and south, where the worm was discovered in 1836, and also in 1837?

THE WHEAT CROP.

We expressed a fear in our last number that the general anticipations from the wheat crop were graduated too high. We are daily more and more confirmed in this opinion. The winter, the grain worm and the rust have seriously diminished the product in many of the best wheat districts. The prospect was uncommonly gloomy the first of May; but the season subsequently has been so very auspicious,—as to induce the public to carry their hopes too far, without making due allowance for the injury which had been done by the winter, or that which has been subsequently inflicted by the grain worm, or which has resulted from other causes. In proof of the correctness of our opinion, we give the following extracts from our private correspondence:

Chalkey Haines writes us from Demascoville, Columbiana, Ohio, that "the wheat was very much frozen out by the winter, but is better than was expected in the spring. Oats and corn look well, though the season is two weeks later than usual."

S. J. Bayard writers us from Seneca county, one of our best wheat districts, under date of August 2, as follows:

"The grain worm, or brown weevil, is doing much damage to the wheat in this and other counties in the vicinity. The *rust*, however, will injure more wheat than all other maladies whatever—whole fields are destroyed by it. The cold nights, and extraordinary humidity of the season, is probably the cause of the general prevalence of this disease. The hopes of the farmer have fluctuated much in the past season in relation to his crops. Early in the spring we thought our wheat would not be worth cutting; but in the last three months its *appearance* has greatly improved. Yet when closely examined, it is found thin in many places, and to be much injured by the worm and the rust. Take the county generally, there will not be harvested quite three-fourths of a crop of wheat. The summer crops, grain and roots, look well. My Italian spring wheat is good—as good as any winter wheat I have seen—free from the worm and rust. Very few of our farmers have yet commenced cutting their wheat. So late a harvest was never before known. The lateness of the harvest must prevent much wheat being threshed before October; or else the operation of putting in the seed for the next years crop will be interfered with."

Oliver M. Barber writes from Gaines, Orleans, under date of 9th August, as follows:

"Our spring crops bid fair for a good yield. Corn is doing better than it has done for several seasons. Our crop of wheat will be a light harvest. Some fields are entirely destroyed by rust, so that they will not be gathered at all; others by the insects and smut. I have not seen a field but is very smutty. We had a frost the night of the 6th inst. which injured the vines and leaves, and some potatoes are wholly destroyed."

Martin Gage, P. M. Benton, Yates, writes under date of August 9.—"We have just commenced harvesting our wheat. Most of it is struck with the rust. A very warm rain has commenced, and some is already beginning to grow. The crop, I apprehend, will fall far short of the general calculation, and the quality will be bad."

The Perry, Gen. paper, of August 2, states, that much of the wheat crop, in that region, is injured, if not destroyed, by the rust; and that some fields will yield but little more than half a crop, though but a few days before they promised a most abundant harvest.

Edward Wilbur writes from Pittsford, Monroe, August 10, as follows:—"I find the worm, which has been committing such ravages on the wheat crop in your section of the state, is extending its works among our fields, and I fear that one or two years more will put a stop to wheat growing in western New-York. Our wheat crop is in many instances sadly injured by the rust, and in some completely destroyed. I have one field of four acres, rich land, which promised thirty bushels an acre, but which the rust has completely destroyed, there not being a bushel on the whole lot; and on other fields I shall not have more than half or quarter of a crop. A heavy frost on the night of the 5th inst. did great damage to our crops of corn, potatoes, beans, &c. I had a field of three acres, new rich land, in the China bean, from which I expected 100 bushels, but on account of the frost, the whole will be a failure; also about three acres of promising corn, of the granite kind. The farmers prospects here have been sadly blighted by the rust and the frost."

THE CORN CROP

Looks remarkably promising, though got in late, upon all grounds adapted to its culture; and if we are not visited with early frosts, the product is likely to be more than medium. The color is uncommonly fine, and the growth has been luxuriant. There has been one peculiarity in the past season, highly beneficial to this grain. Although the mean temperature has been low, and the nights generally cool, yet we have experienced frequent refreshing showers, which, contrary to what has generally happened in other years, have been almost invariably followed by a warm or hot temperature, that gave a vigorous impetus to vegetation.—The oat and potato crops are perhaps unprecedentedly promising.

THE GRASS CROP,

Contrary to general expectation, has turned out very light, in this and many of the neighboring counties. The remark particularly applies to old meadows. This unexpected failure is ascribed to the severe winter, and to the ravages of the grub at the root.

SPRING WHEAT,

Has already superseded the winter species in Lower Canada, and in the northern section of the Union; and such are the casualties which the winter crop has to encounter, from the Hessian fly, from hard winters, and from the grain worm, for the latter, we have no doubt, will soon extend itself over the whole country, that we apprehend the farmers of the northern and middle states, at least, will soon find it advantageous to resort to the spring species of this grain for their main crop. Under this view of the subject, we think we shall be doing a service to the readers of the Cultivator by detailing what we know in relation to different species of spring wheat.

The *triticum æstivum*, or spring wheat, is said to be a native of southern Siberia and Sicily, whence its culture has been gradually dispersed through Europe and America. It ripens ordinarily about the same time as winter wheat, when sown very early; but when sown later it is fit to harvest in ten or fifteen days after the former. The following, among other varieties, are described in the books.

1. Having a red spike, or ear and grain.
2. Red spring wheat, with a white ear.
3. A white spike and grain. These three are all beardless varieties, of the same species, are not easily affected by moisture, and give a flour nutritious, but not so white, or in so large proportions, as the winter varieties. These are believed to be the common varieties cultivated among us.
4. *Siberian spring wheat*, probably the variety cultivated in Oneida, and already noticed on the authority of Dr. Goodsell. It is bearded.
5. *The Egyptian*, or *many spiked wheat*. Loudon terms this a variety of winter, whereas with us it is a spring wheat. This is remarkable for its uncommon productiveness. The grains, however, do not yield so large a proportion of flour or meal as other species or varieties, and the flour is said to be scarcely superior to that obtained from the finest barley. It has been introduced in our country to a considerable extent.
6. *Spelt wheat*, noticed under correspondence. Sown in spring.
7. *Italian spring wheat*. This is the variety which was introduced by Mr. Hathaway, of Rome, and which seems to have proved congenial to our soil and climate wherever it has been tried. It is bearded, the product is abundant, and the grain makes excellent flour.

There are besides those we have enumerated, several other varieties of spring wheat, which we do not find described, and with which we are not acquainted, as the Black Sea and Tea Wheat, which are probably mere varieties, which have been modified by climate and culture.

The white, or spring or summer wheats, flourish best on light soils. The ground, however, requires to be well pulverized. A good preparation is a clover ley, ploughed in May, and sown the 15th in this latitude, so as to escape the grain worm. The straw of spring wheat is generally shorter than that of the winter varieties, the berry less plump, the flour less abundant, and darker, but equally nutritious.

The new material for Silk—which has been discovered by a farmer in Oneida, and which was alluded to in a late Cultivator, we are induced to believe, if our information is correct, will prove of great value to the northern section of the state, by enabling the farmers to go extensively and immediately into the silk business. There is no use in dissembling the fact, which the last four years has amply established, that neither the morus multicaulis nor the white mulberry will withstand our northern winters for a series of years, however they may endure a few mild seasons. Nothing certain can be depended upon from them, but an annual growth from the roots, north of the latitude of the valley of the Mohawk. We make this assertion as well from our own observation, as from information, that the winters have proved fatal to thousands which had been planted in Jefferson, Oswego, Onondaga, and other counties. Our experience of the Brussa has not been sufficient to justify a confident opinion as to its hardiness; and the indigenous red, which *is* hardy, attracts but little attention. A good substitute, therefore, is matter of great importance.—The substitute which has been discovered, the name and utility of which will probably be disclosed and verified to the next legislature, is the leaves of a biennial plant, long subjected to garden culture, perfectly hardy, and which can be readily multiplied to any required extent. The importations of foreign silk amounted, last year, to twenty-two millions of dollars.—The substitution of the American for the foreign article, to half, or a quarter, of this amount, would be matter of great importance in a national point of view, and would add materially to the amount of our productive industry.

TO DESTROY THE HESSIAN FLY,

A farmer in Ohio has adopted the following successful expedient:—He sows early in September, and feeds it down in November. The fly is lodged in the lower joints of the grain, and is *bitten off and destroyed* by the cattle or sheep which feed upon it. The wheat becomes well established by being sown early, and shoots so vigorously in spring as to be little if any affected by the fly. An experiment was made in two adjoining fields, sown at the same time: one was *not* fed down, and was nearly destroyed by the Hessian fly; the other *was* fed down, and wholly escaped the insect. We state this on the best authority.

Smut in Grain.—We are surprised to learn that smut is still permitted to adulterate and diminish our grain crops, when it is a fact amply and satisfactorily established, that steeping the seed grain twelve hours in brine, and rolling it in fresh slaked lime, before sowing, will prevent the evil. The *pepper-brand* and *dust-brand*, the two species of smut, are parasitic plants, the minute seeds of which attach to the grain, and are propelled through the sap vessels of the plant, to the germs of the young grain. The salt and lime destroy the vitality of these seeds.

AGRICULTURE IN PENNSYLVANIA.

Pennsylvania was the first to improve upon the early exhausting agricultural practices of the country: she was the first to employ lime in husbandry, the first to introduce the use of gypsum, and the first to establish an agricultural society. The Philadelphia society for promoting agriculture was incorporated in 1785; and it long sustained a high reputation for usefulness, and enriched our country with several volumes of valuable memoirs. The early improvements in her agriculture, were, however, somewhat limited to the sphere of the society's influence, and were but partially perceptible in the remote districts of the state. And her improvements in husbandry very materially intermitted, as the exertions and influence of that society declined, by the death of many of its principal founders and supporters, until New-York, later, but more steady in improvement, and aided and stimulated by the liberal and enlightened policy of governor D. W. Clinton, has outstripped her in the excellence of her farming operations. Though there are many well cultivated districts in Pennsylvania, New-York, as a state, we think, decidedly surpasses her in the general character of her husbandry; and yet New-York has hardly began to develope the immense resources of her soil and her agricultural industry: she is capable, under the improved system of husbandry which has obtained in some of her districts, of trebling the products of her soil, without materially increasing the amount of her labor to obtain it. We do not make this comparison with any invidious view, but to awaken an honorable emulation, between sister states, in improving the condition of agriculture, which constitutes, in both, the foundation of their prosperity and happiness. A competition in this work of usefulness would be equally creditable to the legislatures and citizens of both states, and prove a rich blessing to our common country.

Our attention has been called to this subject by a report made at the close of the late session of the Pennsylvania legislature, by Mr Harper, of the senate. As the Cultivator has a wide circulation in Pennsylvania, we notice this report for the special benefit of our readers in that state, and for the general benefit of the community at large.

"Land," says the report, "is the source of subsistence for all—it is the capital which supports all kinds of business—it is the substratum of credit. The precious metals may be the basis of circulation; but there could be very little active business, without the credit which rests upon land, and its annual productions. The specific value of land, as well as of its produce, mainly depends upon a proper system of agriculture; of course the interests of every man in the community are blended with those of the farmer. The subject, therefore, is of too much importance to be viewed with indifference by a wise legislature, nor will they neglect to apply all the powers constitutionally vested in them, to advance the prosperity of the most numerous and most valuable class of our citizens.

"It becomes proper, in the first place, to inquire whether, in view of the present state of agriculture, legislative aid is necessary for its further improvement. From our own observation, and information obtained from other sources, we are led to believe, that the condition of agriculture in our state, is not what it ought to be. The object of farming ought to be, to secure the greatest returns for labor and capital invested; not merely the greatest crops for a year or two years, but the largest annual returns, compatible with the increasing value and productiveness of the soil. But is this, in fact, the object with a large portion of our farmers? Does not the contrary appear, manifestly, in many instances? Their sole object appears to be to live with the least possible labor, entirely regardless of the consequences to the land. Their farms are like the garden of the sluggard, overrun with useless and noxious plants; and we may pass them by, as almost beyond the hope of amendment. But, do those who have the true object before them, pursue it in a way likely to attain its accomplishment? Our commonwealth has great capabilties for agriculture; a large amount of fertile soil; a pleasant and healthful climate, and settled with a hardy, industrious, enterprising race of men; yet how few can tell how much can be gathered from a well cultivated acre? How few understand the secret of obtaining from the soil the greatest amount of its annual productions, without the deterioration of its quality? Yet good farming requires that these should never be severed. No man can farm profitably, either to the community or to himself, (supposing him to be the owner of the soil,) who impoverishes his land; and his energies are wasted who improves land, without obtaining profits in return. Doubtless there is a wide difference in the modes of farming, in different parts of the state, some lands being much better tilled than others; still, it is evident that there is still room for great improvement in them all. These improvements are indispensably necessary. The facilities of transportation from the fresh and fertile lands of the west, will soon be so great, that our farmers must find rivals where, heretofore, competition has not been thought of; the difference in carriage will be no protection against their abundance, if a slovenly and unproductive mode of farming shall predominate here. Besides, the strength and wealth of a state consists much in the number and character of its people. Thousands of our best and most intelligent citizens are yearly tempted to go west, who would better stay here under an improved state of agriculture. They take with them the accumulations of former industry and economy, and they bestow their exertions in enhancing the prosperity of another state, detracting so much from our own. Are these evils to be borne forever? or till those states shall be so much ahead of us, that the tide of emigration shall set back on us, as affording the best theatre for industry, ingenuity and enterprise? or until the same system of improvident farming shall have reduced western lands below our own fertility? We cannot believe that our citizens, or legislature, will carry their neglect or supineness to that extent. We believe that our errors will be corrected, and that means exist, and will be applied, to raise our most impoverished fields to more than their pristine fertility."

"But cannot all this be effected without legislative interference? The experience of the world does not give an answer in the affirmative. Although individual enterprise and public spirit may do much in particular districts, GENERAL IMPROVEMENT HAS EVER BEEN THE RESULT OF GOVERNMENTAL PATRONAGE. Individual care and skill have acted as pioneers, by showing what could be done; and government has aided in the dissemination of knowledge, and has encouraged its application to practice. It is unnecessary to give a detailed history of the agricultural colonies of Holland and of the Netherlands; of the boards of agriculture of England and Scotland, and latterly of France, of some parts of Germany, and of some of the states of this Union. Is it not reasonable it should be so? It will be recollected, that farming, as an art, is as much imitative, as any of the mechanic arts, with this difference against it, that in the mechanic arts all the materials are of a known quality; and those which profess to be alike, are really homogenous. The powers of water, in equal quantities and elevations, are equal all the world over; and so in most of the arts;—while the soils of all countries, and of any considerable portions of the same country, are so diverse, that similar applications will produce quite contrary results. So much is this the case, that experiments, from any considerable distance, are deservedly looked upon with distrust. The whole character of a soil may change in a few rods. As an instance it may be mentioned, that our geological survey has ascertained, that the great limestone range of the Cumberland valley, divides the borough of Harrisburgh. It will be necessary to have a series of experiments conducted, on almost every square mile of our territory, before the powers of our soil can be universally and fully developed. Consider these varities of soil, as connected with the changes of atmosphere, and varieties of climate and seasons, in our commonwealth, and the senate will have some uncertain idea of what must be done, before the subject shall be exhausted. Can it be expected that individuals can do all these things, and make known the results, for general benefit? It is worthy of consideration, that the profits of agriculture, though among the most sure, are also among the smallest, which reward the industry of any class of citizens; that a farmer's business is almost always pressing, few items of it admitting of any delay. Think, also, that in very few instances is the farmer protected in the enjoyment of the profits of the inventions, which his skill and talents enable him to make, and that his portion of the public burthens is much greater, in proportion to his income, than that of any other class of our citizens. Think of these things, and then say whether the farmer, laboring under so many disadvantages, can afford to be so much more public spirited than any body else? We think not. For these, and other reasons, let our expectations be what they may, the commonwealth, in fact, will be slow to reap the full benefit of individual exertions. They will be made slowly, and a knowledge of them will be spread slowly—so slowly, that a whole generation shall pass by without being scarcely sensible of a forward movement.

"Will it be said that individuals, by voluntary association and contribution of funds, may remedy this evil? Something may, no doubt, be done; but the evil is too great to be fully mastered in this way. It will require a series of experiments, during a course of years, many of which will fail. A voluntary association may be very useful; but to require them to give their time and attention, and likewise to be at all the expense of spreading information, is asking too much. Many are so unreasonable, as to expect flowers and fruit almost instantaneously after the seed is sown. They become discouraged by a little delay, and retire from the society. This discourages others, till at last, perhaps just at the time when the most brilliant results might be expected, the most persevering and public spirited desist from their labors. The society sinks—the cause sinks—and, in addition to the mortification of disappointed hopes and defeated exertions, they must bear the ridicule and derision with which the ignorant, the prejudiced, and the fault-finding, proclaim their triumph.

"When we consider the importance of the subject, and the uncertainty of these improvements being made, or rather the certainty that they will not be made, by individual or associated exertions alone, we might suppose the argument in favor of legislative action complete. It is well known that mechanics, manufacturers, and those engaged in other branches of industry, beneficial merely to a single district or neighborhood, ask and receive legislative bounty, protection and exclusive privileges. This is an interest affecting the whole state, which, if prosperous, makes all our outlays for internal improvement profitable; which, if not prosperous, must make us all bankrupt. The value of the annual produce of the land in Pennsylvania, amounts, at a low estimate, to forty-five or fifty millions of dollars. Suppose that the utmost that could be done by the exertions of all, should be to add ten per cent to that productiveness, what a difference it would make in the prosperity of our state in a few years. It might make just the difference between prosperity and adversity, for if we could live without the addition, the addition would be clear profit! What a difference between a gain of four or five millions and no gain at all! What an additional impetus it might give to the extent and productiveness of our public works, to have the transportation of this in addition to the present amount! How many valuable citizens would be induced to come here, and be dissuaded from going from us under such a state of things! Does any one doubt, that under a proper system of farming, ten per cent would be added to the present amount of our agricultural productions? How very few plantations are now so perfectly managed, that twenty or twenty-five per cent could not be added? How many might easily be made to yield fifty? And are there not many, very many, whose productions could be doubled? Is not, therefore, the argument in favor of legislative action conclusive? There still remains a most difficult and perplexing part of this subject for consideration. In what manner, and to what extent, shall aid to this great interest be administered? It is evident that means must be used, to have our farming conducted on scientific principles. *It must, in some way,* BE INTERWOVEN WITH OUR SYSTEM OF EDUCATION. Men must learn to judge, from the constituent parts of the soil, and their combinations, what will be the species and qualities of its most profitable productions. An *Agricultural School,* and a *Pattern Farm,* under proper regulations, would imbue the minds of its pupils with valuable principles, and would exemplify and illustrate those principles with a corresponding and successful practice. This would be expensive; but a very small ratio of increase in the annual productions of our farms, would repay it with enormous interest. One successful school of this kind, would, no doubt, be the means of organizing many others; and would, eventually, have a most happy effect on the education and agriculture of the state, and a most beneficial influence on the health and morals of our literary young men. Very signal benefits might be derived to the state from an agricultural survey, soon after the completion of the geological survey now in progress. A report of a skilful practical farmer, after a thorough examination of all the varieties of farming, in use among us, would be a source of much valuable knowledge. Such a report should give minute details; and then would be seen the intimate relation between the minerals, which the earth covers, and the true method of cultivating its surface. Then might a pretty accurate judgment be formed, as to what we might reasonably expect and hope for from our labors."

When we sat down, we intended to give merely a brief abstract of the report; but finding it deeply interesting to every portion of our readers, in whatever state located, we have copied it almost entire. The only remaining portion is a recommendation to give legislative encouragement to county agricultural societies, by aiding them to offer such premiums as will induce the ingenious and enterprising to devote their labor for the public benefit; and that the subject be commended to the early attention of the next legislature.

The subject matter of the report is of deep interest, not only to the citizens of Pennsylvania, but to the inhabitants of New-York, and of all the states, particularly of those upon the Atlantic border. Our system of agriculture has generally been that of exhaustion, which, if persisted in, will thin our population, diminish the products of the soil, and lessen the inducements to this sort of productive labor, the basis of national prosperity, and the nursery of the virtues and independence which can alone preserve our freedom. Individual and associate efforts have proved inadequate to effect the desired change. It can only be effected here as it has been effected elsewhere,—through the aid and patronage of government; and the mode of doing it is correctly indicated in the report before us:—by the establishment of schools, in which our boys may acquire a knowledge of the science and best modes of practice in agriculture;—and in which they will acquire a relish for its pursuits, and a deep interest in its prosperity—by agricultural surveys, which will bring to the knowledge of all, the best practices and the improvement of all;—and by aid to local societies, to enable them to induce useful emulation in their respective districts. The object to be effected is one of vast national importance. There is no one subject of so deep interest to the country, as the augmentation of our agricultural products. It is not only the farmer who is to be profited,—but the merchant, the manufacturer, the artizan, the laborer, the professional man and capitalist, will all come in for a full share of the benefit. The revenue of our canals, some of which are now sustained at serious annual loss, would be increased, by the increased products of the soil, and the increased wants of the husbandman. The transportation upon our rail-roads and turnpikes would be greatly augmented, and their income correspondingly increased. All would be benefitted, and all should lend an effort to aid in the great work of agricultural improvement.

TIMOTHY SOWN WITH BUCKWHEAT.

On a late visit to Coxsackie, we were shown fields of heavy grass, on the farm of Judge Van Bergen, which were sown severally in 1835, 1836 and 1837, with buckwheat and timothy. The soil is a pretty tenacious clay, which it is often difficult thoroughly to work in spring or autumn; but it may be generally well worked in summer; and when the timothy is sown at this time with buckwheat, it vegetates promptly, and becomes well established before winter. Clover may be added, if necessary, the following spring. The grass was uncommonly heavy; and on the field sown the current year, it was thick and promising.

We had an opportunity, at Coxsackie, of comparing meadows which had been long in grass, with those in which tillage crops had been made to alternate with grass, and of fully satisfying ourselves, had a doubt remained in our mind, of the great utility of the latter practice. The recently stocked meadows, although apparently no better in quality of soil, or location, than the others, exhibited a burthen of grass two, three, four, and in some instances, we believe, five times greater than the old meadows.

AGRICULTURAL SURVEYS.

The great improvement which has taken place in British husbandry, in the last half century, has been greatly accelerated by means of the agricultural surveys which, during that time, have been made and published of every county in the kingdom. These surveys are different from geological surveys, although the publications embrace geological maps of all the counties, indicating, by colors, the various soils in each. They are particularly useful to the practical farmer. They detail the various modes of culture, describe and figure the most approved buildings, farming implements and machines, give an account of the main crops cultivated, rotations, domestic animals, &c.; state the product and profits of crops, price of labor, and indeed, embrace all that information which a farmer, desirous of improving his husbandry, by adopting the better practices of others, must be ever desirous to obtain. They in fact concentrate the best farming practices in the kingdom, and then disseminate them for the benefit of all.

We are glad to see Massachusetts, after having completed her geological survey, taking the lead in a work of like usefulness, and hope her example will be, ere long, followed by other states. And we deem her particularly fortunate in the selection of a gentleman, to make her agricultural survey, of high character and qualifications, who combines with science, a good practical knowledge of husbandry. The Rev. HENRY COLMAN is too well known, as an agricultural writer, to need our commendation. He *is* qualified for the task he has undertaken.

Mr. Colman has addressed a circular to farmers in the several towns, soliciting their co-operation in accomplishing the survey; and to give system to his undertaking, and awaken their inquiry, he has addressed to them queries embracing all the matters which are interesting to good husbandry, with a request, that they will be prepared to give him answers *when he visits them*, which he asks permission to do. Though not exactly located in the Bay State, yet we consider the *hint* as extending to us, as we admire the policy of the government in patronizing agriculture, and have received a circular, and therefore heartily invite our highly esteemed friend to take us in his circuit.

A Commendable Undertaking.—A company has been organized in New-York, through the active and praiseworthy exertions of Mr. Minor, of the New-York Farmer, for the manufacture of *Poudrette and Uric*, two articles of concentrated manure, of great power in promoting fertility in the soil, from the contents of the city privies, upon the plan which has long been successfully followed in Paris, and more recently in London and other cities. If we are to judge from its influence in Europe, it will add greatly to the products of the soil about the city, reduce the price of vegetables in the market, and incalculably promote the cleanliness, health and comfort of the citizens. It is estimated that the *vidanges* of that metropolis amount to 250 loads per day. They are completely defecated from odour by chemical process, and may be transported and used with as little offence to the senses as stable dung, or leached ashes. May the undertaking prosper.

OLDEN TIMES—1793.

We continue our notice of the first volume of the old Agricultural Transactions.

DECAY OF APPLE TREES.

William Denning communicates the first notice we find on record of what is now termed the *blight* in the apple, pear and quince. Mr. Denning first observed the disease in his orchard above the Highlands in 1780. "As I observed the young, remote and tender shoots first affected," says Mr. D. "I traced the malady to the spot where the sap ceased to flow, but could discover no external cause. On the second year, I found the boughs wounded deeper, and progressing yearly, the trees continued to sicken, and in six or seven years died." The disease first appeared in the end of June and first of July, when suddenly the leaves withered, turned red and soon fell off; the whole tree appeared sick and the fruit full of spots and unpromising. Mr. Denning ascribed the disease to a borer which entered from the ground into the heart-wood of the tree. The blight of the pear and apple is now ascribed to an insect, or perhaps different insects of the same genus, whose stings are poisonous to the elaborated sap of these trees. The blight has since appeared periodically, at intervals of a few years, and has continued some five or six years at a time. No preventive is known; though to cut off the diseased branches, into the sound wood, and immediately to burn them, thereby probably destroying the ova of the insect which causes the injury, is believed sensibly to lessen the evil. The *tree* becomes affected by the poisonous elaborated sap which descends from the diseased *branches*.

ADDRESS OF CHANCELLOR (THEN JUDGE) KENT.

This was delivered before the society at the anniversary meeting of 1796. The speaker justly appreciates the importance of agriculture, when he terms it "the absolute means of our subsistence; the source of nutriment to the arts; of freedom, energy, commerce and civilization to mankind, and, in short, as the firmest basis of national prosperity."

He is no less correct in commending, as rich in the blessings of health and contentment, the pursuits of agriculture.

"It is certainly," says he, "a precious advantage attached to agricultural life, that it leads to no intemperate avidity for wealth, and inspires bold and generous sentiments of freedom and independence. Although the remark be perhaps too strong, that cities are the graves of the human species, yet it is obviously true, that the farmer's life, from the use of wholesome air, abundant exercise, moderate pleasures and simple diet, [invaluable blessings, which few justly appreciate,] is by far the most favorable to health, longevity and population."

In describing the condition of Great-Britain, in past times, Chancellor Kent depicted, in no faint colors, some of the evils of our own times.

"*The interests of trade and manufacturers* [and we may now add, of the legal profession,] *gained the ascendancy over the cultivation of the land; the industry of towns was preferred to the industry of the country, and farmers submitted to be governed by* [*lawyers,*] *merchants and manufacturers, and pay a heavy premium for their simplicity and generosity.* The mercantile system, (a system of restraint and monopoly,) arose in full vigor and maturity, and gave a tone to national policy and habits of thinking. It did more; it produced ruinous wars and intolerable exactions, *as if the interests of agriculture was only a secondary matter among the concerns of civil society; as if farmers were fit only to be the slaves of ambition*, and to supply, with scarcely an interval of repose, the prodigality of wars, undertaken to support the balance of trade, and to satisfy the jealousy and avidity of established companies."

As a means of improving our husbandry, the palladium of our freedom, and the source of national wealth, he suggests the importance of an *agricultural* survey of the counties, in the following terms:

"And in respect to the state at large, an accurate account of the quality of the soil and timber, of the effects of the seasons and of the state of improvement, in every county, ought to be collected. Also the manner of cultivation, and the products of each respective soil, the nature and extent of enclosures, the several species of live stock, the various implements of husbandry, the nature and effect of different manures, and of the rotation of crops, and watering of land. When we shall have obtained a very extensive collection of facts, the only sure guides in political and agricultural inquiries, the society will be well qualified to ascertain the existing obstacles to improvement, and the means of removing them, as well as the new improvements that ought to be introduced."

And the duty and disposition of the legislature to aid in the work of improvement, is thus enforced and anticipated.

"To the accomplishment of many of these objects, and particularly the collection and distribution of books [on agriculture,] and a statistical account of our own state, the efforts of the society may be found unequal; and surely for such purposes the benevolent aid of the legislature may be freely asked, and will be cheerfully afforded, since contributing to the enlargement of knowledge, and the perfection of the arts, *is the first duty, and greatest pleasure, of enlightened rulers;* and a work executed on the plan I have submitted, would do honor to the state, and be remembered by posterity, as *an illustrious monument of national patriotism, munificence and taste.*"

WHITE THORN HEDGES.

A paper on the culture of white thorn for hedges, by Jonathan Havens, Esq. details a series of experiments upon this culture.

"The qualities most essentially necessary, says Mr. Havens, "in a tree to make it valuable for a hedge, appear to be, either that it should be well defended by some kind of thorns, or of a taste disagreeable to cattle.—There are besides these, other qualities of nearly equal importance; such as that it should be of a durable nature; of a quick growth; not apt to be infected by insects; easily propagated; not difficult to grow on account of the qualities and strength of the soil; and inclining naturally to grow like a bush, or to grow well after it has been cut off or lopped."

The plants of our country, which combine most extensively these requisites of a hedge plant, are the indigenous thorn, several species, the wild crab, and the honey locust, *(Gleditschia triacanthos.)* Of the first, many of the haws are destitute of seed, and it is difficult to make those grow which are fertile. The wild crab is only found in certain districts; yet its seeds may be procured; they germinate freely; and under good management the crab cannot fail to make an excellent fence; and as to the third, the honey locust, the greatest obstacle arises from moles, or ground mice, which frequently bark them in winter. Cattle, however, browse upon all of these plants, so that it is necessary to protect them in early summer, until they have attained the desired size and strength — The prairie west, where they all abound, is the proper place to experiment with these plants.

Mr. Havens' experiments were made upon our indigenous thorn, of which he notices two species, the broad-leaved and narrow-leaved, and upon the English hawthorn. The great difficulty seemed to be to make the seeds grow; and Mr. Havens' experiments were principally directed to this point.

In experiment No. 1, he gathered the seeds of the two American species in April, cracked the haws, and planted the chits in garden mould, mixed with cow-dung. None of these ever came up. Mr. H. inferred, though we think incorrectly, that their vitality had been destroyed by the frosts of winter. It has been found, that the haws of the Washington, or Maryland thorn, are made to grow the first year, by subjecting them alternately to a freezing and thawing temperature.

No. 2. The haws were gathered before frost in autumn, buried in a box, covered with an inch of hen-dung and an inch of mould. About one-quarter part came up the second spring following—grew well, and in eighteen months were twelve to eighteen inches high.

No. 3, was an experiment with the haws of the English white thorn. The haws were gathered in the fall, part of them buried in a box below frost, and a part thrown into the hole with the box. Those upon the outside of the box grew generally the second year, and a portion of those in the box, but moisture had evidently been lacking wholly to saturate the latter.—We subjoin our own experience in this matter:—We received a present of a bag of haws of the English thorn, gathered in April, from Alderman Heeny. We mixed them with about double their bulk of soil, laid the mixture in a ridge, and covered with two or three inches of earth. During the summer, the seeds were twice overhauled, remixed and restored to their former position, and covered as at first. Late in autumn, a seed bed was prepared, and the seeds and earth taken up and strewed upon it, and lightly covered with mould. The following spring, the plants came up very thick—were subsequently planted in nursery rows, and at two and three years old were put in hedge. The hedge was nursed six years, when, despairing of success, we dug it all up, and planted in its stead the honey locust. We became satisfied that the English hawthorn is illy adapted to our climate;—that our winters are too cold, and our summers too hot and dry, to cultivate it here with success.

Experiment No 4, was upon the haws of the native broad-leaved thorn. They were buried below frost in autumn, and very few came up the second year.

The fifth experiment was made with the haws of the narrow-leaved American thorn, was managed somewhat like experiment No. 1, and very few of the seeds grew.

Notwithstanding his discouragements, Mr. Havens persisted in the opinion, that our native thorn was a proper material for live fences, and we think he was right, if we can but discover the means of procuring plants. We think we have a good hedge of American thorn, though the plants were collected from the fields and woods, and headed in to six inches when they were planted.

Mr. Havens alludes to the former cultivation of the prim for hedges; "but this," he says, "has been long since dead, and there appears no probability that it will ever flourish again." The prediction was not true. We have had it growing in hedge the last four years, unscathed by our severe winters. The prim makes a beautiful ornamental hedge, though it seems doubtful if it will ever make an efficient barrier to cattle. Mr. H. says that hedge plants, and even trees, are much injured in their growth, by permitting a tough green sward to grow around them.—"All kinds of trees will derive nearly as much benefit from being hoed, or having the ground kept loose around them, as Indian corn." This is true, and the hint should not be lost upon the orchardist and the gardener.

AGRICULTURE
SHOULD BE PATRONIZED BY THE GOVERNMENT.

To whatever state, country or age, we direct our attention, we find the condition of agriculture, and the consequent substantial prosperity of the population, in a great measure graduated, by the amount of protection and patronage which is extended to its labors by the government. Where it is nurtured and respected, as it should be, as constituting the source of national wealth and independence—and as the great moral conservator of a community—we find the great body of the people industrious, frugal and prosperous. But where agriculture is degraded as a menial employment, and neglected by the government, we find commerce and manufactures at a corresponding low ebb, and the population ignorant, indolent and vicious.

In Great Britain, agriculture has received the fostering care of the government, in her agricultural surveys, premiums and protecting duties; and she is indebted to this branch of her industry more, probably, than to her commerce or manufactures, singly, for her unprecedented state of prosperity. Every agricultural laborer there, feeds three mouths besides his own—four millions of agriculturists feed a population of sixteen millions. No country has made greater strides in agricultural improvement during the last fifty years, than Scotland, under the stimulating influence of her agricultural society, and the thousands of dollars which she has annually distributed in premiums. Her commerce and manufactures have increased with the products of her soil, as has also the industry, intelligence, probity and comfort of her population.

Contrast with that of Britain, the social and pecuniary condition of Spain, where agriculture has received no encouragement or patronage from the government, and where it consequently receives but little attention from the people. An ignorant, superstitious populace spend their time in indolence and want—the soil, naturally fertile, is neglected, her commerce languishing, her manufactures a mere cypher, and the country torn by civil dissentions, and verging to barrenness and desolation. Such, too, is the condition of a part of once fertile Italy, of a great portion of eastern Europe, of Asia Minor, Syria, Persia, and of the northern portions of Africa, which were once pre-eminent for a numerous population, for wealth and civil refinement. The interests of husbandry have been neglected by the governments—honest industry has come into disrepute, because emulation is not encouraged by the rewards, nor labor protected by the arm of government—the soil is in a measure neglected, and the mass of the people are poor, oppressed and wretched.

Were not comparisons invidious, we might illustrate our text by examples nearer home. But we will be content, at present, with holding up good examples, in the hope, that now that the importance of agriculture has been brought home to our *feelings*, by the vast importations of foreign grain, and the embarrassments of the times, the legislatures of the states will be induced, when a sufficient interval of party strife shall permit, to borrow lessons of instruction from states which have acted wisely upon this subject. Commerce and manufactures are fostered and protected by government at an immense cost to the nation, and the fisheries are encouraged by liberal bounties, while agriculture, upon which all must ultimately rely, for sustenance and support, is left to shift for itself. Were this primary branch of labor enlightened and encouraged by the government, as it has been in Great Britain, and is now being in France, Prussia, Msssachusetts, &c. its products would be greatly multiplied, its labors more honored and more followed, and the benign effects of its improvement felt in every department of society.

Great Sale of Durham Cattle.—Matthew Bullock, of Bethlehem, for many years a breeder of improved stock, has advertised to sell at auction, on the 17th October, at his farm, eight and a half miles from Albany, fifty-one head of Durham cattle, embracing **31** cows, **11** heifers, **8** calves and **1** bull.

MILLET.

A correspondent in Monroe county inquires of us relative to the culture, product and use of millet, as a field crop.

Since our wheat crop is likely to be seriously diminished by the grain-worm, and the Indian corn crop is almost annually curtailed by autumnal frosts, the culture of millet may become a matter of interest; for although it is not adapted to household use, or but partially, the seed affords a good substitute for coarse grain to pigs and poultry, and its straw yields a tolerable fodder for farm stock.

Culture.—This plant will grow upon any soil of tolerable richness, though it does best on a loam. The ground should be prepared as for ordinary crops. The seed may be sown broad-cast, and covered with the harrow. If sown early, the crop may be gathered in August, though if sown any time before the 25th June, it will come to maturity. If seed is the object, four quarts of seed to the acre will be enough; but if intended principally for cattle feed, the quantity of seed may be increased to eight quarts. It grows to the height of from two to six feet, according to the quality of the soil. Birds are fond of the seed, and devour it as soon as it begins to ripen. The crop should be therefore cut before the whole has matured, and while the straw is green. It may be cut with a sickle, scythe or cradle, and should be housed as soon as it is sufficiently dry.

Product.—The product will be according to the soil, and will vary from ten to thirty bushels of seed, and from one to three tons of forage, on the acre. It sometimes produces more than a thousand fold returns.

Use.—We have found it an excellent substitute for corn, in fattening hogs, either ground or boiled; and its early maturity renders it particularly useful for this purpose. It is an excellent food for poultry; and if ground would probably be useful for neat cattle and horses. The straw is eaten freely by cattle, and both the seed and straw abound in nutritious matter.

Millet is extensively cultivated in Germany and the south of Europe, where it is sometimes used for puddings, &c. but from our little experience, we cannot recommend it for household use. Birds, we believe, are the only enemies which the crop has to encounter.

MISCELLANEOUS NOTICES.

STEEPING SEED CORN.

We have the opinion of Lysander Chapin, of Chicopee, Mass. founded on his experience, that steeping seed corn is prejudicial, his steeped seed not having come up so well nor so quick, as the seed which was not steeped. This is the third communication we have received of like import. Were we disposed to canvass this question. we might probably cite three thousand cases in opposition to such a conclusion, but it would be wasting time. Let us reason the matter. All seeds must be saturated with moisture before they can germinate or grow; and the sooner they become saturated, other things being alike, the sooner they will germinate and grow. Onion seed, thrown into scalding water, will sprout in a few hours, though its vitality is thereby destroyed. Corn immersed in warm water, probably begins to germinate in twelve hours, though if planted dry, it may not become saturated, and begin to germinate in less than three to six days, according to temperature and the supply of moisture. These facts being granted, and we believe they cannot be controverted, it follows that steeping facilitates the germination. To account for a contrary result, in the practice of our correspondents, we must suppose one of three things, viz: 1. The absence of heat in the soil, to carry on the germinating process, already commenced in the steep; 2. The abstraction of the moisture from the steeped seed by dry earth, with which it may be covered, and which, on the supposition that the radicle has started in the steep, will destroy the vitality of the seed; or 3. That the steep must have destroyed the germinating property of the seed. If steeped corn is covered with *moist* earth, and the hill pressed upon by the planter's foot, to prevent evaporation, we see no reason, according to our philosophy, and we have met with none in our practice, why it should not grow as well, and as quick, as seed that is not steeped.

SMUT IN BARLEY.

O. B. Ashmun, of Champlain, complains that his barley crop is greatly injured by smut, and asks if there is any way of preventing a recurrence of the evil. We have no doubt but the smut of wheat and barley are identical, and that in both the seeds of the parasite may be destroyed, and the crop preserved from smut, by steeping the seed grain in pickle, and rolling it in lime, before it is put in the ground. Smut is of two kinds, provincially termed in Britain, the pepper brand and the dust-brand—the first appearing as the head is bursting the sheath, and the other in the fully developed head. The seeds are so minute as to be absorbed, it is believed, by the germinating seed grain, and propelled by the circulating sap into the young germens. The salt and lime, when applied to the seed grain, destroys their germinating principle.

THE BARBARY BUSH.

S. S. Breese, of Scouondoah, informs us, that he has a field of wheat ery badly blasted, so much so as to render the crop of little value; and that the blast has been ascribed to barbary bushes which are cultivated by Yankee emigrants, in his neighborhood; and that, in consequence of its pernicious influence upon the wheat crop, the culture of this bush is proscribed in Connecticut and in Spain. He asks our opinion of the truth of these matters The prevalent opinion among the farmers of Britain, and on the continent, is, that the barbary bush is highly injurious to the wheat growing in its vicinity. "The effect of this shrub," says Willich, "upon wheat lands, is truly singular, and though well-known to botanists, is not familiar to every farmer. When growing in the hedge, or near corn [wheat] fields, it changes the ears to a dark brown color, and prevents them from filling; nay, its influence in this respect has often extended across a field to the distance of three or four hundred yards, [in the direction of the prevailing winds.] It should be carefully eradicated from lands, therefore, appropriated to tillage "

Truth requires us to add, that the above opinions are controverted by some of the most learned naturalists of the day. Sir Joseph Banks went deeply into the investigation of this subject, and spoke in doubt on the deleterious influence of the barbary bush upon wheat. All seem to agree that the rust fungus, or blight, is a parasitic plant, the seeds of which float in the atmosphere, attach themselves to grain, and there germinate and grow, to the prejudice of the crop. "They germinate and push their minute roots, no doubt, (though these have not been traced,) into the cellular texture, beyond the bark, where they draw their nourishment by intercepting the sap that was intended by nature for the nutriment of the grain. The grain, of course, becomes shrivelled as the fungi are more or less numerous on the plant; and as the kernel only is abstracted from the grain, while the corticle part remains undiminished, the proportion of flour to bran in blighted corn is always reduced in the same degree as the corn is made light Some corn of last year's crop, will not yield a stone of flour from a sack of wheat."—*On blight in corn.* The question at issue seems to be, whether the parasitic fungus that is observed upon the barbary bush, is identical with that which injures the wheat?—for there seems to be no doubt that the seeds are so minute as to be wafted upon the wind. Naturalists say no—practical men say yes. We will not pretend to decide.

CLOVER AFTER CLOVER.

David Miller, of Brownville, Pa. asks us, if clover will grow with wheat, which has been sown the preceding fall upon a clover ley? It certainly will, and this mode of alternating clover and wheat is extensively practised in West N. York, though we think the practice a bad one, tending to exhaust too much the specific food of both crops. It has been found in the great clover county of Norfolk, England, that this grass fails when returned too often to a field; that it will not bear repeating, in many instances, in every four years course of crops; and that it is necessary to substitute other grasses for clover in every other course.

GRAFTING ON WILD STOCKS.

William Heeox, of Florida, Mieh. says the thorn, wild plum, wild cherry and crab apple, abound in his neighborhood; and he inquires,

1. Can the cultivated kinds of these fruits be grafted on the wild stocks of the same? *Ans.*—Yes.

2. Can grafts be safely cut in winter. *Ans.*—Grafts may be cut any time after the fall of the leaf in autumn, and before the buds swell in spring—and may be kept in good condition, by placing the buts in moist earth in the cellar, or in a potato. And

3. Will grafts produce fruit sooner if taken from bearing, than if taken from young trees. *Ans.*—Yes.

The pear is not thrifty, and is generally short lived, when put upon the thorn. The practice is only warranted by necessity.

We would advise Mr. Hecox, and all other frontier settlers, who wish to raise fruit, and who does not? to procure seeds of the cultivated kinds, sow them in nursery, and bud or graft them with choice kinds; a tree or two of the desired kinds will cost but a trifle. One tree of good fruit is worth half a dozen trees of bad fruit. The peach may be budded the year the seed is planted, and the apple, pear and cherry the second year after planting the seed. This is the mode we adopted sixteen years ago; and our trees have been in bearing many years. If wild stocks are used, young thrifty plants should be selected, and planted in the garden, and the graft inserted low, or in the collar or root, as the cultivated kinds are apt to overgrow the wildings.

A WOOL DEPOT,

For the reception and sale of wool, has been established, by John A. Parker, corner of Wall and South-streets, New-York. For particulars wool growers may address Mr. Parker, it not being consistent to publish advertisements except with our February number.

STUMP EXTRACTOR.

We have a communication of E. Cornell, of Ithaca, confirming the statement of Judge Drake, of the utility of Pratt's Stump Extractor. Col. Cobb, of Dryden, has had one long in operation—has 500 rods of stump fence, substantial and permanent, and takes out from 40 to 120 stumps in a day, according to size, with two ox power, and five men.

CATTLE—IMPROVED SHORT-HORNS.

We give below, a likeness, very correctly copied from the herd-book, by our excellent artist, Mr. Hall, of the celebrated improved short-horn bull COMET, (fig. 37,) (bred by Mr. C. Colling,) and sold by him for 1,000 guineas; and also of VIOLA, (fig. 38,) a beautiful milch cow, of the same family, (bred by J. Whitaker.) The properties and fine points of this breed of cattle, will be found described in our first volume.

Fig. 37.

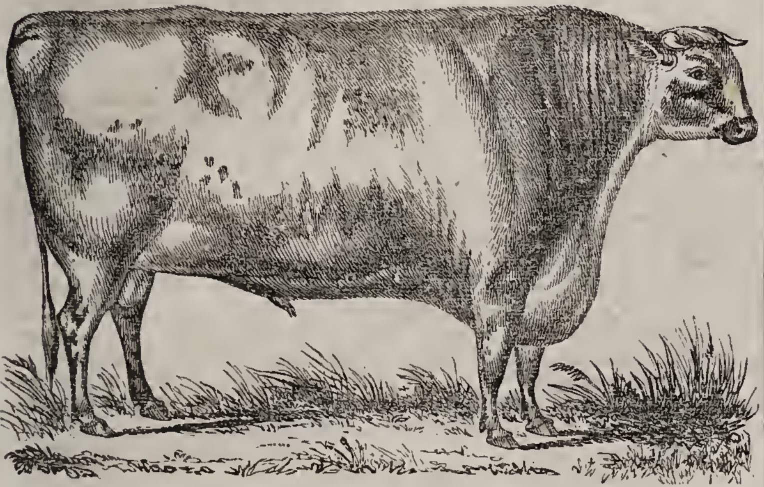
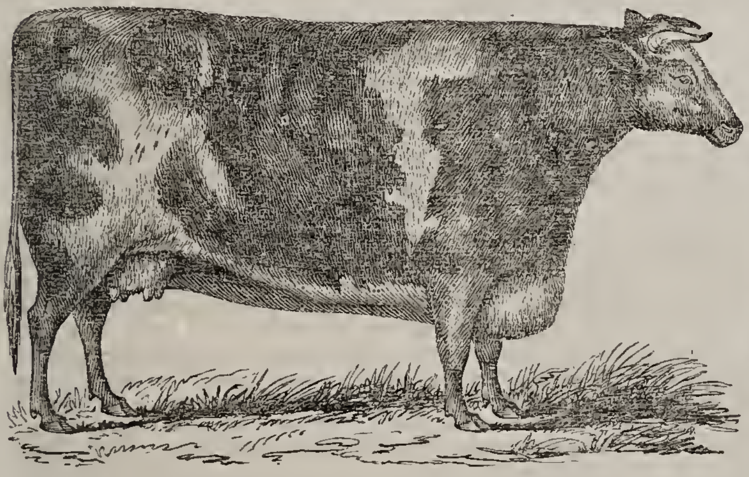


Fig. 38.



The following extract relative to this breed of Cattle is taken from the "Complete Grazier:"

The Short-Horned Cattle, under which denomination are indiscriminately included the *Dutch*, *Holderness* and *Teeswater breeds*, are supposed to have acquired the appellation of Dutch, from a cross with some large bulls that were imported near a century ago, from Holland into Yorkshire, in the east and north ridings of which county, the two latter had been long established. It has, however, been doubted whether any advantage was derived from this intermixture; for the increase thus obtained in size was thought to have been counterbalanced by a more than proportionate increase of offal. But, fortunately, the error was not universal; for some intelligent breeders, aware, even at that day, of the superiority of symmetry to bulk, preserved the breed of which they were already in possession, in its native purity; and it is from some of that stock so maintained, or, at least, from a cross between that stock and some of the progeny of the Dutch and Teeswater cross, that the present improved short-horned cattle, now generally distinguished as the *Durham*, or *Yorkshire breed*, are descended.

This breed was introduced about forty years ago, by the Messrs. Collings, of Darlington, and has rapidly risen in the public estimation. The cattle are very large, and are beautifully mottled, with red or black upon a white ground; their backs level; throat clean; neck fine; carcass full and round; quarters long; hips and rumps even and wide: they stand rather high on their legs; handle very kindly; are light in their bone, in proportion to their size; and have a very fine coat and thin hide. They differ from the other breeds, not only in the shortness of their horns, but as being wider and thicker in their form, and consequently feeding to greater weight; in affording the greatest quantity of tallow when fatted; and in having very thin hides, with much less hair upon them than any other kind except the Alderneys. They also possess the valuable properties of fattening kindly at an early age, and of yielding large quantities of milk; but the quality of the latter is not so rich as that of some other species; they are, besides, rather tender constitutioned, and, consequently difficult and expensive to winter.

Of this breed, Mr. Charles Colling, of Ketton, sold a bull—*Comet*—by public auction, in the year 1810, for the extraordinary sum of *one thousand guineas;* and the history of the celebrated *Durham ox*, the property of the same gentleman, is too remarkable not to merit attention.

He was bred in the year 1796, and at five years old was not only covered thick with fat upon all the principal points, but his whole carcass appeared loaded with it, and he was then thought so wonderful an animal that he was purchased in Februaay, 1801, for £140, to be exhibited as a show; his live weight being then 226 stone, of 14 pounds. In the following May he was again sold for £250, to Mr. John Day, who, two months afterwards, refused for him two thousand guineas! He was exhibited in the principal parts of the kingdom until April, 1807, when he was killed, in consequence of having accidentally dislocated his hip in the previous February, and although he must have lost considerably in weight during his illness, besides the disadvantage of six years' travelling in a caravan, yet his carcass weighed 187 stone 12 pounds; and Mr. Day stated his live weight at ten years old, to have been 270 stone.

Uncommon as this animal then was, he has, however, been since exceeded in size by a Yorkshire ox, bred by Mr. Dunhill, of Newton, near Doncaster, the carcass of which weighed, when killed, 264 stone 12 pounds; and he was supposed to have lost near forty stone while being exhibited in London.

Still more recently, another beast of uncommon size, fed by Lord Yarborough, has been exhibited under the title of the "*Lincolnshire Ox;*" but, though bred in that county, from a favourite cow belonging to Mr. Goulton, he was got by a descendant of Comet, out of Countess, also of the Durham breed. This extraordinary animal measured five feet six inches in height at the shoulders, eleven feet ten inches from the nose to the setting of the tail, eleven feet one inch in girth, and three feet three inches across the hips, shoulders and middle of the back; the lowest point of his breast was only fourteen inches from the ground, and he stood one foot ten inches between the fore legs; the girth of the fore leg was nine inches.—*Complete Grazier.*

Mile.—The following exhibit of the number of yards contained in a mile in different countries, will often prove a matter of useful reference to the readers of the Cultivator.

Mile in England or America, ...	1,760	yards.
——— Russia, ...	1,100	——
——— Italy, ...	1,467	——
——— Scotland and Ireland, ...	2,200	——
——— Poland, ...	4,400	——
——— Spain, ...	5,028	——
——— Germany, ...	5,866	——
——— Sweden and Denmark, ...	7,233	——
——— Hungary, ...	8,800	——
League, in England or America, ...	5,280	——

☞ Mr. Bushnell, who exhibited an approved drill-barrow to the agricultural examining committee, as mentioned in our last, is a resident of Sheffield, and *not* of Lee, Mass.

WILSON'S MOWING MACHINE.

The subscribers, having witnessed, on the 11th August, on the farm of Mr. Teller, of Greenbush, the operation of Wilson's Mowing Machine, certify to the following facts:

The machine was propelled by one horse, upon a brisk walk, through a meadow of thick timothy and redtop, somewhat lodged or tangled. It cut a swath from two and a half to three feet broad, in handsome style. We are of opinion, that with a double team, or two stout horses to relieve each other at intervals, the machine will operate well on smooth bottoms, free from stones, and effect a great saving of manual labor. The knives are sharpened by their revolving motion.

We think Mr. Wilson entitled to great credit for his skill and perseverance, and hope he may be amply remunerated for both.

WILLIAM AKIN,
JOHN TOWNSEND,
J. BUEL,
BENJ. AKIN,
WILLIAM TELLER,
ISAAC AKIN,
AARON B. AKIN,
THOMAS DUNN.

August 12, 1837.

A real friend will show us our faults.—We often commend our friends, from courtesy, or in the hope of having our flattery reciprocated, for conduct which is really reprehensible. Friendship should deal only in truth, which, though it cause temporary pain, generally eventuates in good.

CORRESPONDENCE.

STEAMING APPARATUS.

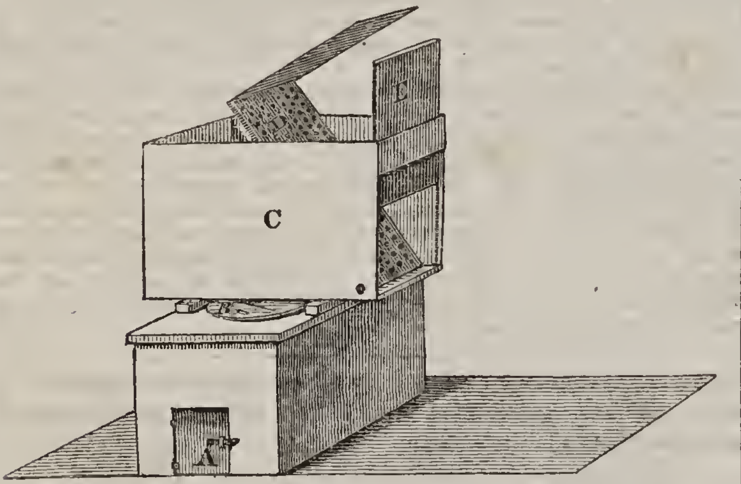
We think so well of the apparatus described below, that we intend to have one in operation as soon as our potato crop is gathered.

STEAMING VEGETABLES.

J. Buel—Dear Sir—The method of cooking potatoes, turnips, &c. by means of steam, for feeding hogs, I believe would be universally preferred and adopted, were it not supposed that the steaming apparatus would be too expensive for farmers generally to provide. The operation of steaming potatoes can be performed with less trouble than that of boiling. In Vol. II. No. 7, of the Cultivator, is a cut and description of what you consider to be a very good apparatus; the expense of which is estimated at about fifty dollars. And you very justly conclude that farmers cannot afford so great an outlay for this purpose, who have less than fifteen or twenty hogs to feed.

But, sir, the object may be attained in a much less expensive way.—Any farmer who begins work in the morning, who can borrow an auger and use it, may provide himself a good steaming apparatus in one day.—We have had one in use two or three years, such as I shall attempt to describe.

Fig. 39.



A. Furnace door. B. Boiler. C. Steam-box. E. End slide. D. False bottom, with holes in.

Every farmer has an iron kettle, commonly called *the great kettle*, which will answer very well for a boiler. Let such an one be properly set in an arch; fit a cover of inch boards within the rim, and lute it with clay to make it tight. A piece six or eight inches wide should be nailed across the cover to keep it from being warped. Make a hole in the centre of the cover large enough to receive a tube of two inches calibre, to convey the steam. Another hole two inches in diameter is to be made near one side of the cover, through which the boiler is supplied with water, and is stopped with a plug. Make a box for potatoes, &c. three feet long, sixteen inches wide, and two feet high. This is set over the boiler, resting upon the arch; the bottom of which should not be more than four or five inches above the cover of the boiler. The hole in the bottom of the box to receive the tube from the boiler, is made near to one side of it; the box covering but little more than half the boiler, leaving a convenient space to fill it through the plug-hole. The tube should project half an inch through the bottom, to prevent the drippings from the potatoes running into the boiler. The position of the box should be a little inclined; the lower end projecting beyond the arch for the convenience of taking out the potatoes when cooked. This end of the box is made with a slide to draw upwards, when the cover is taken off. There is also a closely perforated bottom within the box, placed an inch and a half above the first, that the steam may be equally diffused throughout the mass. The end of the perforated bottom next to the open end of the box, is fastened to a round stick passing through the box from side to side, and serves as a hinge to this bottom. On the other end of the perforated bottom, let a board of the same width be fixed that shall rise near to the top of the box, having a hole in it to insert a hook for the convenience of raising it when it is to be emptied; if it be required to do so while the potatoes are steaming hot. Thus the box may be readily emptied of its contents without stopping up the holes in the bottom, as would be unavoidably done with a hoe or shovel. The cover of the box should be secured from being warped.

Should it be required to steam on a larger scale than this, two such kettles may be used in an arch, and the steam from both conveyed into a box of greater dimension.

The method of placing the potatoes or other food to be cooked, above, and very near to the boiler, is manifestly more economical than that by which the steam is conveyed the distance of several feet in a metallic pipe; as in the latter case a considerable portion of heat is evidently lost before it reaches its destination.

I send herewith a drawing of this simple contrivance, to enable you more fully to understand its construction; and if you think proper, you can describe it so that others may understand it also. Yours, &c.

NATHAN LOOMIS.

Butternuts, Otsego county, July, 1837.

GRASSES FOR THE SOUTH-WEST.

J. Buel, Esq.—Dear Sir—I saw by the August number of the Cultivator, that Mr Edward H. Bryan, of Vicksburgh, Mississippi, inquires, through the columns of your valuable paper, what grasses will endure the climate of that state, and furnish a winter supply for stock.—From my knowledge of that part of Mississippi, in the vicinity of Vicksburgh, Grand Gulf, Port-Gibson and Natches, I would recommend the white clover and gama grass. They both thrive admirably well in the southern part of the state of Louisiana. The white clover grows much better in the vicinity of Franklin, New-Iberia, and St. Martinsville, (which places are in the same latitude of New-Orleans, but in a due west course about 120 miles distant,) than in New-Jersey. And the gama grass is to be found natural, where the land is kept enclosed, and the cattle kept from eating it, but on the prairies they pick it out so close, that it would not be observed unless a person was looking very close for it, but the red clover will not stand the heat of that climate.

Yours sincerely, WILLIAM A. STONE.

Rahway, Essex co N J. Aug. 13, 1837.

P. S I have planted a patch of the Buel or Dutton corn, but it does not meet my expectations, on account of its bearing but one ear on a stalk. I do not think that I have five stalks in the whole patch with two good ears on them; it is the earliest corn I ever saw. I discovered the tassel on it in two months from the day it was planted. I have it planted 3½ by 2 feet, on my best land.

I wish you would inform me through the Cultivator, if it generally produces more than one good ear on a stalk. W. A. STONE.

Planted close, the product is generally but one ear to the stalk—planted wider, it is commonly more. At four feet apart, we believe the Jersey distance of planting, there would be but 2,722 hills on the acre. If planted 3½ by 2, there would be 6,222 hills—or more than double. It is by multiplying the hills that the great product is obtained.—[*Conductor*.

SPELT WHEAT.

J. Buel—Dear Sir—Having read, in your valuable paper, and other publications, of so many failures of wheat crops in your part of the country, I consider it my duty, to call the attention of your farmers to an excellent substitute for this (in some places so precarious) bread stuff, by stating the following facts:—In the country where I came from, (the fertile plains between Heidelberg and Manheim, and the rivers Neckar and Rhine, in Germany,*) wheat was universally raised in former times, but as the crops failed frequently, the farmers turned their attention to spelt, and succeeded so well in raising this valuable grain, that you cannot see there, now, one acre of wheat among hundreds of spelt. Spelt makes superior flour, and of course, better bread; is not so difficult in raising, nor so much subject to losses by cutting over-ripe, and easier threshed clean in damp weather. I am in the habit of raising a few acres every year, but can only use it as a good horse-feed, for want of a spelt-mill. Such an apparatus could easily be added to every mill in a neighborhood where the raising of spelt would prevail. If you think this well meant hint worth publication, you may, if you please, dress it in better English than I am capable of doing. Your humble servant,

F. C. SPEYERER.

Butler county, Pa. 26th July, 1837.

The Spelta, Spelt or German Wheat, spoken of above, is extensively raised in Germany, in France, and on the Rhine; its culture has been recommended in the north of England, and has been introduced in Pennsylvania, by German emigrants. It nearly resembles barley, though its stalks are shorter. Its straw is stout and almost solid. From it is manufactured the incomparable Nuremburgh and Frankfort starch. It grows well on mountainous lands and poor soils, though like every other crop, it thrives best on lands that are fertile. This grain cannot be divested of its husks by threshing, but requires the operation of a mill for the purpose. Willich calls it an excellent grain.—*Conductor*.

THE ARMY WORM.

Vermillion, Ia. June 27, 1837.

Dear Sir—Have you any knowledge of what we call the "Army Worm?" I have never heard of their ravages in your section, and so I ask the question. They sweep through our meadows, timothy principally, wheat fields and corn, and generally leave the stalk naked of blades. I had about 60 acres of timothy destroyed this year by them. When they commenced, the head was just appearing, and in about ten days there was nothing but the bare stalks to be seen. The meadow was stocked down a year ago, last August or September, and a part of it with wheat, which was of very rank growth, and much stubble was left on the ground, and they seemed principally to have their origin in the stubble; and I noticed them in my old meadow, wherever mown. I was afraid they were much more numerous. I should have burned off the ground, but our spring was very dry, and winds high. This I have no doubt would have destroyed the egg. When I first discovered them, it was after a warm rain and a cloudy morning—then the grass was black with them. I was careless in not preserving some to mark their change, but a small proportion of them are transformed into millers, for I found many dead on the ground. They have done very little injury in the neighborhood. I intend sowing 100 acres timothy and wheat this summer, and shall take the precaution to burn them over next spring at the risk of my farm.

---

* Under the 50th degree of northern latitude.

Do you know any preventive or means of destroying them?

In haste, yours with respect,
JOHN R. PORTER.

My winter and spring wheat looks fine, though late. The Italian was sowed first May, but our frequent showers are bringing out the heads finely.

Dear Sir—Permit me to ask your Dutchess county correspondent to review his article in the June number of the Cultivator, upon the subject —"More profitable to feed hay than to sell it." There is something in his statement which, to me, appears quite inexplicable. If we substitute *loads* for tons, bushels, and dollars worth of straw, it will be very nearly as follows:—

15 tons of hay make as many loads—but say	20 loads.
325 bushels mangold wurtzel and ruta baga, allowing 25 bushels to the load,	13 loads.
1½ tons cotton seed oil cake,	2 loads.
30 dollars worth of oat straw, when hay sells at $20 a ton, cannot be more than	30 loads.
Amounting in all to	65 loads.

Now if your correspondent made, from this amount of food, "200 ox-cart loads of stable dung, well heaped," it is the greatest augmentation of matter, I have heard of since the time of miracles; when "twelve baskets full of fragments were taken up," after a few loaves and fishes had filled a great multitude.

It is presumed the writer of the article in question will not pretend that the transmutation of food into dung, by animal functions, will either add to its weight, or increase it in volume. The query is, by what mighty magic did Mr. J. effect this wonderful increase? I ask for information.

Otsego county, July, 1837. NATHAN.

DUTTON CORN, &c.

Selin's Grove, Aug. 15, 1837.

J. Buel, Esq.—I am much pleased with the appearance of the Dutton corn. I have it planted on four farms, along with other corn. It is now in full ear, whilst that which is planted along side is not by two or three weeks so far advanced. On the farms its growth is quite dwarfish, compared with our other corn; but I have a lot of about one and a half acres, near my house, planted with Dutton, which stands full seven feet, if not more, full of fine ears, a majority of which have not 12, but from 14 to 16 rows of grain. Much of it is now too hard to boil.

The small sample of oats [Barley oats,] you had the goodness to send me, I drilled in my garden, and have cut it. I like it very much, and think it will be a great acquisition.

My spring wheat [Italian] did much better than I had reason to expect. I did not get it in time to sow before the 1st May. It was much injured by mildew. We cut it on the 14th inst. and we have estimated the yield at 20 bushels. This from one bushel of seed.

Very respectfully yours, H. W. SNYDER.

CORN BREAD—HOMMINY, &c.

Lake County, Ia. 2d August, 1837.

Judge Buel,—Dear Sir:—Permit an experienced Hoosier to add to your "Corn Bread" receipt. There are two reasons why southern or western corn bread is so "grateful to the taste." Let eastern lovers of corn bread adopt these two maxims:

1st. Never grind the corn *fine*, or sift it through a fine seive—no matter how coarse the meal, if the hull is removed.

2d. The *hotter* the spider or bake oven, so that it will not burn the dough immediately, the softer and sweeter will be the bread. The lid may be put on red hot, and when it begins to scorch, remove it a minute or two. The great secret being to form a slight crust all over the cake instantly.

The *rolls* descrided by your Tennessee correspondent, are called all over the west "*dodgers;*" the raised loaves "*pones.*"

The word "homminy," I think, is but little known at the east. It is a western word, and a western dish. The receipt does not convey a sufficient knowledge to the uninitiated. It is simply "hulled corn," of which you used to be so fond, when a boy, "I guess." The Yankee mode is hulling by lye, and then boiling and eating directly, or at any rate before it sours. The western mode is hulling by pounding, as described, in a "homminy mortar," the music of forty of which I have heard from as many negro kitchens at one time, of a still evening, on the banks of the Ohio river. The process is tedious, but produces an excellent article of food; a good substitute for rice. Sound white corn should be selected. The pounding breaks the kernel somewhat, and dries it. It is then put away in a bag or barrel, and will keep as long as rice. It is not so useful, however, among the universal potato eating nation as it is at the south, where it often happens that families do not raise ten bushels of potatoes in ten years. "Hog and homminy," "corn bread and common doings," constitute their living, except an occasional meal of unraised hot "wheat cakes and chicken fixings."

Homminy is a very pleasant, light food, which, though quite nourishing may be eaten by the dispeptic with impunity. Your receipt for the cooking is perfect.

I do not write for the sake of having it published, you will use it as you think proper, without giving any offence to, A FRIEND.

EXTRACTS.

ADDRESS OF JAMES McNAUGHTON, M. D.

Delivered before the N. Y. State Agricultural Society, Feb. 10, 1837.

Gentlemen:—I regret that some person more competent than myself could not be prevailed upon to address you on the present occasion. I must crave your indulgence in advance, for any imperfections you may observe in the matter or manner of my discourse, as the call upon me to address you has been unexpected, and I have had but a short time for preparation, amidst the numerous interruptions incident to my profession. It might be supposed that a farmer would be the most suitable person to address a society instituted for the purpose of promoting agriculture, and other branches of rural economy. There cannot be a doubt that the remarks of a practical farmer would have more weight and authority, than those of a person who merely professes a love of rural occupations, and has paid attention to them, rather as matters of relaxation and amusement, than as the serious business of life.

Those most conversant with the history of agriculture, will, however, recollect, that many of the greatest improvements made within the last half century in that department of human industry, have emanated from professional men, and from gentlemen who never held a plough, or labored in the field.

Although myself very little of a practical farmer, yet I have had opportunities of witnessing a good deal of farming operations, as carried on in this country, and in some of the most improved countries of Europe; I therefore hope that some of my remarks may be deemed worthy of the notice of the society. This society was instituted for the purpose of carrying into more general practice such improvements relating to rural affairs as are calculated to elevate the character of the farmer, to render the noble business of cultivating the soil more profitable, and to promote the general prosperity of the state. The field of our exertions is not limited to mere agriculture, or the cultivation of the soil, but embraces likewise every thing relating to rural economy.

In the remarks which follow, I shall avail myself of this latitude, and trust the society will pardon me if I appear to digress too much from what may be considered the special object of our association.

Agriculture may be regarded as the parent of arts, commerce and manufactures, and the great source of the prosperity of nations. Its history dates almost from the creation of man. In the state of innocence, in the garden of Eden, it is probable that the earth spontaneously yielded all that was necessary for its inhabitants. But immediately after the fall of our first parents, Holy Writ informs us, that Adam was expelled from the garden, "to till the ground from whence he was taken." Consequently, agriculture ranks first among the arts, not only in importance, but in seniority. Of the immediate descendants of Adam, the first born was a "tiller of the ground," and his brother Abel "a keeper of sheep." Here, then, we have, at the very origin of our race, the agricultural and pastoral life commencing simultaneously, although it has been a favorite speculation with philosophers, to designate three progressive stages of society. The first, that in which man is supported by the spontaneous productions of the soil, by hunting and by fishing—the second, the pastoral—and the last, the agricultural stage. Such does not seem to have been the progress of society before the flood, whatever may have been the case since that period. No distinct mention is made of hunting before the time of Nimrod, who is described as "a mighty hunter."

Immediately after the flood, it is probable that the human family had recourse to agriculture and fishing for their support; for it is fair to presume that the beasts of the field, fit for the food of man, were as yet too few to be used for that purpose;—and that therefore they were allowed to multiply for some time without molestation. Warrant was granted to Noah to eat every moving thing that had life—"Every moving thing that liveth shall be meat for you; even as the green herb have I given you all things."

It is not improbable that mankind, for several ages after the flood, remained united, and that agriculture and the arts had made considerable progress among them. The fact of their being together in such numbers as to commence the building of a city—to make brick, and to use slime or pitch for mortar—and to attempt to build a tower whose top should reach "unto the heaven"—shows that the necessaries of life must have been raised in abundance around them, and that many were enabled to withdraw from the cultivation of the soil, to the arts necessary for the artificial society of a city. But upon the dispersion of mankind, by the miraculous confusion of tongues, whether we interpret the language literally or figuratively, much of the knowledge existing in a dense population must have been lost, as mankind became scattered and ceased to communicate with each other. As few, in all probability, were capable of remaining together, on account of the scantiness of the means of support, a relapse into barbarism was scarcely avoidable. Many, of a roving disposition, would support themselves by hunting, while the more prudent would trust to the rearing of flocks, and a more or less careful cultivation of the soil.

But as they had the whole world before them, it is not probable that there was much industry, or much attention to the arts, for a long period. The pastoral life being the easiest, and less precarious than that of the mere hunter, we find that it was followed by the patriarchs; and recent travellers assure us, that the customs of the nomadic tribes of Asia are not essentially different, at this day, from what they were in the days of Abraham.

In process of time, however, mankind had become so numerous that more attention to the cultivation of the soil became necessary for their support. They began to acquire fixed residences, and to accumulate individual property. Arts and civilization necessarily sprung up among them; and in proportion as agriculture made progress, nations became civilized, prosperous and powerful. It has always been so, and there is reason to believe it will continue so as long as the world lasts. Sully expressed his conviction of this truth, by saying, that agriculture might be regarded as the breasts from which the state derived its nourishment and support.

The Jews were an agricultural and pastoral nation, having few manufactures, and but a very limited commerce. Egypt seems to have been the granary of the world during the most flourishing periods of the Jewish monarchy. The natural fertility of the soil of Lower Egypt, caused by the periodical overflowings of the Nile, was probably the cause of this, rather than the skill or industry of her agricultural population. The Greeks are supposed to have derived their knowledge of agriculture, as well as of other arts, from the Egyptians; but they do not seem to have excelled in the cultivation of the soil. Their country was in many respects unfavorable, being more remarkable for picturesque scenery and natural beauty, than fertility. To render the soil fertile and productive, required more labor than the Greeks felt disposed to bestow upon it. Most of the field labor was performed by slaves; and I believe there never has been a country highly improved by such labor.

The Romans, as they were in all respects a more industrious, a more honest, a more respectable people than the fickle Greeks, carried the arts of husbandry to a higher degree of perfection. From the Georgics of Virgil, and more particularly from the writings of Columella, we gather, that during the Augustan and subsequent ages, agriculture was practised on correct and regular principles Columella has left us twelve books on agriculture and gardening. The style is elegant, and the work is said to display the genius of a naturalist, and to evince an observing mind. Unlike most conquering nations, particularly those of antiquity, the Romans carried with their arms civilization and arts They did not, in general, burn the towns and lay waste the countries they subdued. Whenever they formed a permanent conquest, they opened roads, built bridges and aqueducts, and promoted agriculture. All this they might have done, less for the good of the subdued, than for their own security and advantage. But still, if we deny them credit for motive, we cannot in justice refuse to concede to them the merit of having diffused improvement and civilization over extensive regions of the earth, which had hitherto remained in a state of barbarism, and which, but for them, might have remained so until this day. Our ancestors were found by them little better than the savages that roam through our own forests. They went to war, naked and painted, like the Indians of modern days, and do not appear to have made much, if any, greater progress in the scale of society. The people of the northern parts of the continent of Europe were very much in the same condition. But the parts that submitted to the Roman sway, felt the influence of the energetic government of that remarkable people. Towns and cities sprung up in great numbers—the soil became better cultivated—the people (being protected in their lives and property) became numerous and improved—good roads were made almost every where—the cities had baths, and aqueducts, and splendid buildings, not much inferior to those of Italy herself.

This state of comparative happiness, prosperity and improvement continued until the Roman empire, the most splendid, the most magnificent, and the most useful to human advancement the sun ever shone upon, began to totter under her own unwieldy weight, and the fierce assaults of the Goths, Vandals, and other barbarians of the "Northern Hive."

In the confusion which followed the dismemberment of the Roman empire, agriculture, in common with other occupations, suffered great injury. The elegant and useful arts not only ceased to advance, but actually retrograded. The security of a steady and energetic government was wanting. No man felt the assurance, when he sowed in the spring, that he would be allowed to reap in the autumn. He consequently lost the most influential incentive to exertion. The arts of war were in higher estimation than those of peace. The cultivators of the soil were looked upon as an inferior race, and in general were so in point of fact.

For more than a thousand years, agriculture ceased to make advances, even in the most favored spots of Europe; while, in the greatest part of what was once the Roman empire, it became greatly neglected and deteriorated. The estates of the church were the best cultivated, both because the priests were the best informed in agriculture, as well as in other branches of knowledge, and because, during the destructive wars which were of almost constant occurrence, the contending parties generally respected the property of the church.

Agriculture, like the arts and sciences in general, soon felt the influence of the discovery of the art of printing and the revival of letters. After the restoration of letters, Lombardy and Tuscany were foremost in improvements. The mildness of the climate, the richness of the soil, and the facility of irrigating their fields, all contributed to this result. From improved agriculture, commerce and manufactures received an impulse. The worthy example of these states was, in process of time, followed by France, Holland and the Netherlands, by the German States, and by the British Islands.

Until the middle of the eighteenth century, however, it is perhaps safe to say, that agriculture and rural arts, even in the most improved countries of Europe, scarcely equalled their condition during the flourishing state of the Roman empire.

In the British Islands, the successive conquests of the Saxons and Normans, the constant foreign wars, or the several dissentions at home, all tended more or less to retard improvement of every kind. When we compare the population of the several nations of Europe now, with what they possessed at the date of the discovery of America—when we consider the very limited commerce carried on by them with other countries—the frequent famines and pestilences which prevailed—and the very small numbers engaged in manufactures—we can easily judge how imperfect must have been the husbandry of the period.

In England, during the reign of Henry VIII. considerable advances were made in agriculture. The first book on English husbandry was published by Sir A. Fitzherbert. The book of husbandry was followed by the book of surveying and improvements. The art continued to make steady progress during the reign of Elizabeth.

The agriculture of Scotland and Ireland was in a worse state than that of England. The accession of the house of Stuart to the throne of England, instead of benefiting rather retarded agriculture in Scotland; while the civil wars and internal disquietudes of Ireland, then, as now, operated as powerful checks to cultivation. From the union of Scotland with England, down to the conclusion of the American war, no very decided improvements in husbandry, or in the management of live stock, took place, except the introduction into more general use of the drill system, by Jethro Tull, and the practice of Bakewell, in the raising of stock. But since the middle of the last century, to the present time, the advancement of the rural arts in general, has been steady and rapid. The whole of Great Britain almost, may be said to have acquired a new aspect The people have become numerous and prosperous, the value of lands has tripled, while whole districts of country, before deemed barren and unfit for cultivation, are now seen yielding luxuriant crops. This change is no doubt attributable to several causes; but I believe none have been more operative than the various associations and societies for the promotion of agriculture and rural economy. Among these may be named, as the most distinguished, the Highland societies of London and Edinburgh, and the British Board of Agriculture.

As our society is instituted for similar purposes, it may be useful to take a rapid glance at the leading improvements in husbandry and rural economy which these associations have been instrumental in introducing into more general use. We can then inquire how far such improvements as are applicable to this country, are known and practised by our farmers—how such as are not in use, can best be introduced—and what further the society can suggest for the considerable and adoption of the farming community.

Until the middle of the last century, a considerable portion of the arable land of Great Britain was held in common among the inhabitants of the numerous villages, as well as among the class of small farmers. The tenure was also for short terms, as one or two years in many instances, or the occupants were tenants at will. Both these causes tended greatly to retard improvement; for it could not be expected that individuals would expend much labor or money upon what they had no assurance they should possess for more than a season. One of the first and most important objects the societies above mentioned had to accomplish, was to point out the evils in this system, and the advantages that would accrue from the granting of longer leases, and the holding of land severalty. In Scotland, most of the land not cultivated by the proprietors is now held in severalty, and on leases varying from fourteen to twenty-one years. In England, the practice of granting long leases is not so universal, and much of the land is yet held in common. To this is justly attributed the slower advancement of agriculture in some parts of that kingdom than in Scotland.

With long leases, attention to rotation of crops became more general—greater pains were taken to prepare the soil for the several crops, by thorough ploughing, the removal of weeds, stones and bushes, the making of suitable drains, and the application of manures, where the soil had become exhausted by successive crops.

In the agricultural districts of Scotland, those who are there denominated farmers, are generally men of considerable capital and education—who have made the theory and practice of their important art the subject of particular study. The district most improved by art, though not naturally the most fertile, is that of the Lothians. But no part of Scotland is so remote as not to have felt the influence of the spirited exertions of individuals and associations within the last half century for the improvement of rural operations.

Within my own time, in an extensive district amidst the Grampian hills, on the banks of the River Tay, and the lake of the same name, the change in the face of the country and in the character of the people, has perhaps not been surpassed even in this wonder working country.

Within a century, that district was occupied by a semi-barbarous people—"the Children of the Mist"—the cateran followers of Rob Roy, occupied a part of it, and lawlessly roamed through the rest. The agriculture was scanty, and of the worst kind—the breed of cattle was so poor as scarcely to be worth stealing—the people had little industry—were ill fed, and worse clad. Now, the picture is very different: No part of the empire possesses a more industrious or a more moral people. They are well informed and well clad, and their farms yield crops scarcely equalled by the fields of the Lothians. The breed of cattle, too, has not been less improved than the farms. All this has been accomplished since the commencement of the present century, in a district of country less favored by nature than the despised and neglected regions of the northern parts of this state. I mention this to show what wonders can be accomplished under persevering industry, guided by correct principles, and encouraged by the influence of men of property and information.

I believe it is generally conceded that the theory and practice of agriculture are, at this time, as well understood in England and Scotland, as in any part of the world. It is well known that few countries have been less favored by nature, either as to soil or climate, for agriculrure or horticulture, than Scotland; and yet few countries have done more for the advancement of these branches than she has done. My time will permit me merely to enumerate the leading means by which this eminence has been attained;—some of the causes which retarded improvement, I have already mentioned.

The direct causes of the advanced state of Scotch husbandry, are chiefly referable to the following: 1st. Careful tillage—thorough ploughing, to pulverize the soil—the removal of weeds, stones, stumps, bushes, &c.—the proper draining of fields, and the use of manures to such soils as were exhausted by long tillage, or were naturally poor. 2d. The regular rotation of crops, varying these according to the nature of the soil. 3d. The general introduction of turnips and clover. 4th. The use of lime, marl, alga marina, and compost manures. 5th. The introduction of improved implements of husbandry—as the plough, the cart, the threshing machine, the fanners, the rollers, harrows, &c. &c.

The triumph of modern over ancient husbandry is due to the introduction and use of these improved implements, more than to any other cause. The ancients separated their grain on a threshing floor erected in the fields, by means of the feet of oxen, or by rude instruments, which injured the grain, and consumed much time; and they depended on the winds for winnowing the seed. The construction of mills for grinding grain, also distinguishes modern husbandry from the ancient. The modes practised by the latter were exceedingly rude: the grain was pounded between stones, or in some kind of mortar. It is not very long since this practice obtained in some parts of Europe, and is probably prevalent at this moment in some of the new settlements of the United States.

Having given this sketch of the progress of husbandry in the old world, I hope the society will indulge me by permitting a few remarks on the agriculture and rural economy of this state.

When the province of New-York came into the possession of Great Britain, agriculture was in a very low state at home. Most of those who emigrated from Europe brought with them little skill and less capital. Land was of little value, and therefore easily obtained. Every body could be (what in Europe is still considered a great distinction) a landed proprietor. Most of the emigrants, therefore, preferred hardships, as proprietors, to comfort as domestics and laborers. The great mass of farmers became lords of the soil, and managed their farms themselves, aided by their children, seldom being able to find people to hire, even if they possessed means for paying them. The virgin soil, however, was rich, and yielded freely, without much labor or expense of culture. Some extensive estates, or manors, existed, in which the farms were in the possession of tenants holding leases, some of which were perpetual—or, as long as water ran or grass grew. The rents were almost nominal. I believe these were the worst managed farms in the province; and the remark is as applicable, so far as I have seen, at the present day, as at any former period.

The revolution, and consequent separation from the mother country, made no change in the general method of farm management. The farms have, until within a very few years, been cultivated with little attention to the improved agriculture of foreign countries. Crop after crop was taken off, as long as the produce was worth the trouble of cultivation, until the soil became exhausted. Little care was taken to preserve manure—no attention was paid to rotation of crops—stones and stumps were left in the field unmolested—if there existed a wet spot of ground, the ploughman went round it, leaving possession to weeds and frogs—if a small stream traversed a field, it was permitted to meander in serpentine courses, to ornament the landscape by its luxuriant growth of bushes—drains were hardly thought of, and when made, were scarcely ever covered, no matter how abundant stones to fill them might be in the contiguous fields. The effect of this system has been, that in almost all the old counties of this state, the soil has been exhausted, the culture of wheat is given up, and many extensive districts are now chiefly abandoned to pasturage, being no longer fit for profitable tillage. On many farms, the wood has been destroyed, while no attempt was made to remedy the injury by planting. The fences, or enclosures, were of the rudest and worst kinds, while hedges were in many counties scarcely ever seen. Thus beauty and utility were alike disregarded.

Within the last few years, in several counties, much improvement has taken place in every thing that relates to agriculture; but it is far from being general in any county, and many of the remarks already made, are still applicable, in the fullest extent, to much the greater number of farms in the districts immediately around us.

The great ends contemplated in the institution of this society, were, the improvement of the various branches of husbandry, and the several arts connected with them. Much may be accomplished by a concentration of efforts. We have a great deal to encourage us in the success which has attended the exertions of other associations for the promotion of various useful arts and sciences. It is to be wished that gentlemen largely interested in landed property would unite with us, and by their purse and influence, as well as example, aid in promoting objects by which their private interests and the good of the public at large will be simultaneously advanced.

It is desirable that there should be union and uniformity in our efforts. To promote this, I would suggest the propriety of organizing in each county an auxiliary society, and that at the annual meetings of this society, in addition to the permanent members, there should be a delegate from each of the county societies. I would further suggest, the propriety of appointing an executive committee here, at the seat of government, to act during the recess of the State Society in its behalf, to carry into operation such plans as may be adopted for advancing the cause in which we are engaged.

At the last session of the legislature, an act incorporating a state agricultural school was passed. Considerable progress has been made in procuring subscribers to the stock of this school. It is intended, should the necessary amount be subscribed, to select a farm in this vicinity, of the extent of at least five hundred acres, on which are to be erected, on the most improved plans, suitable farm buildings. It is also in contemplation to procure specimens of the most improved implements of husbandry; and that the management of the farm should be conducted upon the most approved principles. Teachers are to be attached to it, for instructing pupils in the theory and practice of agriculture. It is intended, in short, to make it a school for the education of skilful and scientific practical farmers. At present it is uncertain how far these objects can be realized. That such a school is wanted, no one will deny; and that such a school, properly conducted, would be of incalculable benefit to the farming interests of this state, admits of as little doubt.

Something more is necessary than can be obtained at such a school as the agricultural is expected to be. If it be intended to make the pupils of the school work on the farm, for the double purpose of earning enough to support themselves, and of making them skilful in the practical details of farming, excepting in the winter season, little leisure will be afforded for study.

It appears to me, that there ought to be established here, at the seat of government, an institution founded by the state, and liberally endowed, wherein a thorough education could be obtained in the liberal arts and sciences. The means of the state are ample for the purpose; and as no such institution at present exists within the bounds of the commonwealth, it would seem that no place is so suitable for its location as the seat of government.

At such an institution, lectures on the science of agriculture might be given during the session of the legislature, so that all who took an interest in the subject might have the benefit of them. The kindred sciences of chemistry, mineralogy, geology and natural history, could likewise be taught. The present time is auspicious for the purpose. A geological survey of the state is now in progress, under the authority of the government. A most important collection of objects in geology, mineralogy, zoology and botany, must of necessity be the result. It is therefore highly desirable that a suitable museum be provided for the reception and preservation of this collection. What place so proper as the capitol of the state? Such a collection once made, would be a nucleus around which future additions would accumulate, until at last it might rival in utility, if not in extent, the collection of the Garden of Plants, in Paris If this first step be taken, under the auspices of the state, there is every reason to hope, that in no long time, we shall possess an university, not in name, but in fact—an university, where the more elementary branches usually taught in academies and colleges should be excluded, while chemistry, agriculture, mining, engineering, geology and mineralogy, natural history, political economy, mental and moral philosophy, and such other branches as are of sufficient interest to attract pupils, could be thoroughly studied.

The limits of this discourse will not permit me to enter more fully on this subject; I merely throw out the suggestion for the consideration of the society, so that, if deemed important, it may be acted upon without loss of time.

At the agricultural farm, pupils might be taught the management of farms, the raising and taking care of stock, &c. Botany and horticulture might likewise be taught and practised there; but the institution in the city, it appears to me, ought to be the place where such as had leisure, or inclination and means, to study profoundly, should resort.

No business is more important, none more honorable, than agriculture and its kindred arts. The wealth, the power, the morality of a nation, are closely connected with it. Let, therefore, the wealthy, who have the greatest interest, be foremost in its promotion. Let them make gentlemen farmers of their sons, instead of professional men and merchants. Let them give an education such as befits their prospects, and the honorable position they are to occupy in society.

If this were more generally done, we would less frequently see the well earned property of the fathers squandered by the children, or the high professional character acquired by the parent, sullied by the incapacity and indolence of a son, who feels not the stimulus of necessity, to make him tread in the honorable course pointed out to him. The country would become the residence of the most worthy and most gifted members of society;—the wilderness would blossom as the rose, and none would be found to live in cities, but such as could not afford to dwell in the country, or such as, for the love of gain, could submit to temporary banishment for the sake of spending the evening of their days, each under his own vine and fig-tree, remote from the noise and turmoil of the multitudinous city. To all, then, who wish to live in health, comfort and independence, we would say—

> "Venerate the plough,
> "And o'er your hills and long withdrawing vales
> "Let Autumn spread its richest treasures to the sun,
> "Luxuriant and unbounded."

OF THE NATURE AND USES OF THE PRODUCTS OF VEGETATION.

The elements that enter into the composition of plants, are but few in number; but the proportions in which they are combined establish so great a difference in the products of vegetation, that it seems almost incredible, that these should be the effects of so small a number of principles, varying only in the proportions in which they are united.

The aliments of plants are water, air, and manures: these substances absorbed by the leaves, the fruits, or the roots, furnish, by analysis, carbonic acid, hydrogen, a little azote, and some earthy and saline principles: it is from these materials that the almost endless variety of widely differing products of plants is formed by their organs.

During the progress of vegetation these products are found to undergo successive changes; that which is first acid becomes sweet; that which is tender becomes hard, and all is owing wholly to the constant changes taking place in the proportions of the constituent principles; and one is astonished at finding that the most exact analysis of substances possessing the most opposite characteristics, detects no other difference than some hundredths more or less in the proportions of their elements.

When a plant has completed or terminated its various stages of vegetation, the dead remains, if exposed to the action of the same agents, such as air, water, and heat, suffer a succession of retrograde changes; they are gradually decomposed, and their constituent principles enter into combination with those of the bodies by which they are acted upon; thus the dead plant is entirely governed by those invariable physical and chemical laws, which in the living plant are governed and modified by the laws of vitality, the action of which regulates that of all external agents, and produces results which we can neither explain nor imitate.

Though great caution should be used when endeavoring to establish an analogy between two modes of existence differing so widely as those of animals and vegetables, it must be perceived that there is a resemblance in the manner in which both are nourished.

Animals inhale air by their lungs, or absorb it by glands scattered over their bodies; they are nourished by solid aliments received into their stomachs, or into some analogous organ; plants absorb air by their leaves and fruits, and imbibe through their roots the nutritive juices contained in the earth. In animals, the juices circulate through every part, and pass into all the various organs, in which they are elaborated, in order to form all the products which belong to this kingdom; in vegetables the juices are carried into the bark, the alburnum, the pith, the wood, the leaves, and the fruit, by tubes and glands, which are arranged in hexagonal cells, and are very numerous in the parenchyma, and in the cortical layers of the bark; the juices undergo particular modifications in the various organs, and form in each one of them new compounds differing from each other.

The leaves receive the sap in vessels of the most delicate texture; in these it is elaborated, and combined with substances absorbed from the atmosphere, whilst the surplus of water, as well as the oxygen of the carbonic acid from which they have extracted the carbon, is given out by the leaves through their transpiring pores. The sap, after experiencing these changes, passes into the organs of the plant, where it is subjected to new elaborations.

The leaves are to plants, what the lungs are to animals; those receiving the sap, as these do the blood, to be mingled in them with the gas absorbed from the atmosphere, and to pass thence into the great vascular system; and from both leaves and lungs the superfluous water and gases are thrown out into the air.

We likewise find a great variety of structure amongst the various species of which the two kingdoms are composed; some have a soft, loose, parenchymatous formation; others present a harder and dryer tissue; this, in vegetables, is owing to the predominance of carbon; in animals, to that of phosphate of lime; these two principles, though very different, form the basis of their separate structures. The same elements enter into the composition of all the products, whether animal or vegetable; the difference between them arising solely from the different proportions of the constituent principles.

An analysis of the principal products of vegetation has been made with great care by Messrs. Gay-Lussac and Thénard. The results of these researches enable us already to draw some conclusions in regard to the character of any one of the products, according as this or that principle may predominate in its composition; or according to the nature of the elements combining to form it. Thus we know,

1. That a vegetable substance is acid when it contains no azote, and when the quantity of oxygen in proportion to that of hydrogen, is greater than is necessary for the formation of water.
2. That when the proportion of hydrogen to that of oxygen is greater than is necessary for the formation of water, the substance is oily, resinous, alcoholic, or ethereal.
3. That when the quantity of oxygen and hydrogen contained in a substance is the same as in water, the substance is analogous to sugar, gum, fibre, &c.

I shall in this work speak only of such products of vegetables as are most common, or of the most extensive use, either for domestic purposes, or in the arts: and I shall endeavor as much as possible to follow the order prescribed by the analogy of their constituent principles.—*Chaptal's Chemistry.*

NOTICE OF THE FARM OF J. F. EDMUNDS, OF CHARLOTTE.

In fulfilling my engagement to visit the best managed farms, and report to the readers of the Register such points of management as seem to be most deserving of imitation, I find it a difficult task to determine what models to select. There are many plantations in Charlotte, Prince Edward, Halifax, &c. on which the best management exists, on the old plan of cultivation: that is to say, their management denotes economy, industry, good arrangement, and neat cultivation. Such plantations have been very profitable, in times past, to their owners; but this profit has been derived from the cultivation of tobacco. And it must not be disguised, that most of the estates that have produced large tobacco crops, have greatly deteriorated in value on account of the paramount attention required by this crop, to the neglect of all permanent improvement. I, by no means, intend to assert, that tobacco culture is incompatible with improvement. There are many successful tobacco cultivators who have improved their estates; but the great majority of the thorough-going tobacco cultivators, have adopted the three-shift system—have no standing pastures—raise no hay—sow but little clover—and bestow but little attention on the subject of manures. The planters, who are deriving the most profit from their plantations, are practical men, who have been successful cultivators of tobacco, and who have devoted a part of the labor and resources of their farms to raising manure and the grasses. The sight of such a plantation, a few years ago, in the tobacco region of Virginia, was like an oasis in the desert—as rare as it was refreshing—but their number is annually increasing; and there are now considerable districts of country, in Charlotte and Prince Edward counties, that present a view of good meadows, well manured lots, and large fields well set in clover. But, without indulging further in general remarks, I will proceed to give a short account of the successful management of the planters residing on Wardsfork creek, in the county of Charotte. The planters in this part of the county at first acquired their celebrity by making high priced tobacco. A few years back, when the tobacco that suited the French market commanded higher prices than any other description of tobacco, almost every planter, without a single exception, known to the writer of these lines, that raised a tobacco crop on Wardsfork, obtained a good price for it. The general character of this tobacco, was not only yellower, but it possessed a finer texture, and contained more oil, than the tobacco grown in other parts of the county. Such general success could scarcely be attributed alone to superior management; and it is now a prevailing opinion, that the Wardsfork lands possess some ingredient very favorable to the growth of tobacco; and as these lands have been supposed by many to contain lime, in some of its combinations, I have but little doubt, that it is the marl ingredient in the Wardsfork soils, that renders them so peculiarly adapted to the growth of both tobacco and clover. There is a recuperative energy in the soil on this little stream, that is rarely met with in other soils. The sub-soil, after a few years exposure to the sun and frosts, when aided by a little manure, is almost as productive as the original surface soil.

As a specimen of the Wardsfork management, I will solicit the readers attention to a hasty outline of the farming operations of John F. Edmunds, esq. In riding up to Mr. E.'s house, the greater part of his cleared land appears in full view from the road; and nearly the whole of his uncultivated land is seen set in clover or herd's grass. Mr. E. cultivates both corn and tobacco on clover leys; and considers clover to be well adapted to precede a tobacco crop, provided plaster is used on the tobacco as soon as it is weeded out. He thinks that tobacco is a very precarious crop to follow clover, unless plaster is used. There are some features in his management different from his neighbors; and, in fact, different from the management of any planter with whom I am acquainted, in the tobacco section of the state. The oat crop, is almost universally cultivated in this part of the state, and is generally considered one of the few crops peculiarly adapted to our latitude and soil; but Mr. E. does not sow an oat grain on his plantation. He considers oats a very exhausting crop—they require seeding at a very busy time to the tobacco planter, and are taken from the field, at a time of the year, when the land is most exposed to injury from the sun. He uses herds grass hay as a substitute for oats; and always makes enough hay for his teams, and frequently sells a part of the produce of his meadows. Mr. E. sows down the whole of his corn land and tobacco land in wheat. He thinks that the tobacco crop is the very best crop to precede wheat, and contends that it is better than a heavy clover ley. His profits from his wheat crop are much greater than he ever realized from the oat crop. In addition to the flat land already set in herds grass, Mr. E. has lately sown thirty acres of the best of his flat land on Wardsfork. And as his meadows now yield a sufficiency of hay to supply his plantation, he expects to sell annually the produce of the thirty acres. He thinks our climate is well adapted to the growth of timothy and herds grass; and he has raised crops of hay as large, per acre, as the highest reported account of the produce, per acre, of any northern farm. The planters on Wardsfork, generally, have paid great attention to meadows. They have been very successful in reclaiming flat lands, that lie too low for constant cultivation, and putting them down in grass to mow. And there is a peculiarity about their mode of preparation of a scene for meadow, that is worthy of notice. Their meadow lands are all thrown up in beds, of the width of about twenty feet. I observed this management, particularly, on the plantation of Capt. Henry A. Watkins, who is a very successful cultivator of herds grass.

The plantation under review, has been greatly improved by the application of putrescent manures. It is the subject to which the energies of the farmer are principally directed. The proprietor has entered upon this subject with great zeal and enthusiasm. If all the manure, raised on his farm, were applied to the tobacco crop, he thinks it would manure two hundred thousand tobacco hills, or the whole of the land cultivated in tobacco. The leaves of the forest, swamp mud, alluvial deposite on the creek flats, the manure of the hog pen, of the stables, the farm yard, are all brought into requisition, to furnish their aid towards the permanent improvement of the soil. During my last visit to Mr. E.'s plantation, I found him engaged in a new and interesting branch of his subject. He had selected a large section of the thinnest part of an enclosed field, for the purpose of applying upon it loam from his creek flat. The spot selected, on the creek, was an almost inexhaustible heap of rich loam, many feet deep. There were two wagons, one team of mules, and two hands, engaged in hauling out this mud. While the driver was carrying off one load, the other hand filled the other wagon, which had no team attached to it, and as soon as the driver returned, he geared his mules to the wagon loaded in his absence, and left his own to be again loaded. By this process, an incredible quantity of mud could be carried out in a short time. The loaded wagon was drawn by fine strong mules. The loads were deposited in heaps, of a load each, four or five yards apart. Mr. E. informed me that he had ordered an ox cart to be made, for the purpose of aiding in hauling out mud and other manure. He said, he had determined to set apart two hands, whole sole employment, through life, should be to make, collect, haul out and spread manure, except when their services were much needed in harvest, and on such days as they were prevented, inclement weather, from attending to their vocation. I asked him, if he meant that the labor of these hands should substitute the labor of his field hands, in making and hauling out manure. He said not: and that he meant to double his exertions with his field hands on this subject. If Mr. E.'s success in future, be equal to his success in raising manure for the last two or three years, it requires but a simple calculation to prove, that every acre of land on his farm may be made rich in a few years. The manure obtained from his hog yard, and the mud from his flat land, are resources but seldom availed of in this section of country, and seem to be deserving of attention by other farmers. Mr. E. is not alone in his exertions to raise large quantities of manure. The subject begins to command that attention, generally, which it so justly merits. The information obtained on this subject, by the circulation of the Farmers' Register, is convincing many of its great importance. Many farmers are asking the questions—"Why is it, that the farmers in the northern states, are reaping three or four thousand dollars nett profit, from farms of two hundred acres extent? Why is it, that many farms in France, of ten or fifteen hundred acres extent, support a thousand sheep and a proportionate number of neat cattle? Why is it, that the product of a Flemish acre exceeds the product of five of our best cultivated acres? Why is it, that land in the interior of the state of New-York, as far distant from the large markets as our interior, commands a price of from sixty to one hundred dollars, that was originally poorer than the tobacco districts of Virginia?" The answers to these questions, are, *that they understand and practice the art of raising putrescent manures, and the artificial grasses.* It is true, that such great improvements have been partially effected by the application of mineral manures; but mineral manures are in the reach of more than half of the farmers of this state, and the resources for making putrescent manures, are fully sufficient to employ the leisure time and energies of those who are deprived of the aid of mineral manures.

Mr. E. defends, with great tenacity, his practice of suffering his corn stalks to remain on his fields, to be ploughed under with the wheat, instead of hauling them to his farm pen. His reasons, for this practice, are, that the stalks prevent his land from washing; that they benefit the land to some extent, scattered as they are, through the field; that it is unnecessary labor, to haul them up, because his supply of leaves is almost inexhaustible, and he can haul a load of the latter, in as short a time as he can haul a load of stalks; and he considers the leaves fully as valuable. But, notwithstanding the plausibility of this reasoning, I will hazard the opinion, that it is an error in management, not to haul corn stalks to the farm pen. The planter is almost compensated for his labor in hauling them, by feeding them early to his stock. The loss from evaporation, when they are suffered to stand, or, when badly covered by the plough, (as they generally are,) is considerable; and, as an absorbent of the fugitive portion of the farm-pen manure, they answer a much better purpose than leaves.—*Farmers' Register.* E.

OUTLINE OF THE FIRST PRINCIPLES OF HORTICULTURE.

BY JOHN LINDLEY, F. R. S., &c. &c.

FRUIT—(*Continued from page* 106.)

231. As the latter substance cannot be obtained at all in the dark, is less abundant in fruit ripened in diffused light, and most abundant in fruit exposed to the direct rays of the sun, the conversion of matter into sugar occurs under the same circumstances as the decomposition of carbonic acid. (141 and 279)

232. Therefore, if fruit be produced in situations much exposed to the sun, its sweetness will be augmented.

233. And in proportion as it is deprived of the sun's direct rays, that quality will diminish.

234. So that a fruit which when exposed to the sun is sweet, when grown where no direct light will reach it will be acid; as pears, cherries, &c.

235. Hence acidity may be corrected by exposure to light; and excessive sweetness, or insipidity, by removal from light.

236. It is the property of succulent fruits which are acid when wild, to acquire sweetness when cultivated, losing a part of their acid.

237. This probably arises from the augmentation of the cellular tissue, which possibly has a greater power than woody or vascular tissue of assisting in the formation of sugar.

238. As a certain quantity of acid is essential to render fruit agreeable to the palate, and as it is the property of cultivated fruits to add to their saccharine matter, but not to form more acid than when wild, it follows that in selecting wild fruits for domestication, those which are acid should be preferred, and those which are sweet or insipid rejected.

239. Unless recourse is had to hybridism; when a wild insipid fruit may be possibly improved, (204.) or may be the means of improving something else.

240. It is very much upon such considerations as the foregoing that the rules of training must depend.

IX. SEED.

241. The seed is the ovulum arrived at perfection.

242. It consists of an integument enclosing an *embryo*, which is the rudiment of a future plant.

243. The seed is nourished by the same means as the fruit; and, like it, will be more or less perfectly formed, according to the abundance of its nutriment.

244. The plant developed from the embryo in the seed, will be in all essential particulars like its parent species.

245. Unless its nature has been changed by hybridising. (204.)

246. But although it will certainly, under ordinary circumstances, reproduce its species, it will by no means uniformly reproduce the particular variety by which it was borne.

247. So that seeds are not the proper means of propagating varieties.

248. Nevertheless, in annual or biennial plants, no means can be employed for propagating a variety, except the seeds; and yet the variety is preserved.

249. This is accomplished solely by the great care of the cultivator, and happens thus.

250. Although a seed will not absolutely propagate the individual, yet as a seed will partake more of the nature of its actual parent than of any thing else, its progeny may be expected, as really happens, to resemble the variety from which it sprung, more than any other variety of its species.

251. Provided its purity has not been contaminated by the intermixture of other varieties.

252. By a careful eradication of all the varieties from the neighborhood of that from which seed is to be saved, by taking care that none but the most genuine forms of a variety are preserved, as seed-plants: and by compelling by transplantation a plant to expend all its accumulated sap in the nourishment of its seeds, instead of in the superabundant production of foliage, a crop of seed may be procured, the plants produced by which will, in a great measure, have the peculiar properties of the parent variety.

253. By a series of progressive seed-savings upon the same plan, plants will be at length obtained, in which the habits of the individual have become as it were fixed, and capable of such exact reproduction by seed, as to form an exception to the general rule; as in turnips, radishes, &c.

254. But if the least neglect occurs in taking the necessary precautions (252) to ensure a uniform crop of seed, possessing the new fixed properties, the race becomes deteriorated, in proportion to the want of care that has occurred, and loses its characters of individuality.

255 In all varieties those seeds may be expected to preserve their individual characters most distinctly which have been the best nourished (243.); it is consequently those which should be selected in preference for raising new plants, from which seed is to be saved.

256. When seeds are first ripened, their embryo is a mass of cellular substance, containing starch, fixed carbon, or other solid matter in its cavities; and in this state it will remain until fitting circumstances occur to call it into active life.

257. These fitting circumstances are, a temperature above 32° Fahr. a moist medium, darkness and exposure to air.

258. It then absorbs the moisture of the medium in which it lies, inhales oxygen (278), and undergoes certain chemical changes; its vital powers cause it to ascend by one extremity for the purpose of finding light, and of decomposing its carbonic acid (279.), by parting with its accumulated oxygen, and to descend by the other extremity for the purpose of finding a constant supply of crude nutriment.

259. Unless these conditions are maintained, seeds cannot germinate; and, consequently an exposure to light is fatal to their embryo, because (278.) oxygen will not be absorbed in sufficient quantity to stimulate the vital powers of the embryo into action, for the purpose of parting with it again, by the decomposition of the carbonic acid that has been formed during its accumulation.

X. SAP.

260. The fluid matter which is absorbed either from the earth or from the air is called sap.

261. When it first enters a plant it consists of water holding certain principles, especially carbonic acid, in solution.

262. These principles chiefly consist of animal or vegetable matter in a state of decomposition, and are energetic in proportion to their solubility, or tendency to form carbonic acid by combining with the oxygen of the air.

263. Sap soon afterwards acquires the nature of mucilage or sugar, and subsequently becomes still further altered by the admixture of such soluble matter as it receives in passing in its route through the alburnum or newly formed woody tissue (65.)

264. When it reaches the vicinity of the leaves it is attracted into them, and there, having been exposed to light and air, is converted into the secretions peculiar to the species.

265. It finally, in its altered state, sinks down the bark, whence it is given off laterally by the medullary rays, and is distributed through the system.

266. No solid matter whatever can be taken up by the roots; for this reason, metals, which in the state of oxydes are poisonous, are perfectly harmless in their metallic state, as mercury; and this is, no doubt, the cause why liquid manure, which contains all the soluble parts of manure in a fluid state, acts with so much more energy than stimulating substances in a solid state.

267. The cause of the motion of the sap is the attraction of the leaf-buds and leaves.

268. The leaf-buds called into growth by the combined action of the increasing temperature and light of spring, decompose their carbonic acid (279.), and attract fluid from the tissue immediately below them; the space so caused is filled up by fluid again attracted from below, and thus a motion gradually takes place in the sap from one extremity to the other.

269. Consequently the motion of the sap takes place first in the branches and last in the roots.

270. For this reason a branch of a plant subjected to a high temperature in winter, will grow while its stem is exposed to a very low temperature.

271. But growth under such circumstances will not be long maintained, unless the roots are secured from the reach of frost; for, if frozen they cannot act, and will, consequently, be unable to replace the sap of which the stem is emptied by the attraction of the buds converted into branches, and by the perspiration of the leaves. (XII.)

272. Whatever tends to inspissate the sap, such as a dry and heated atmosphere, or an interruption of its rapid flow, or a great decomposition of carbonic acid by full exposure to light, has the property of causing excessive vigor to be diminished, and flower buds to be produced.

273. While, on the other hand, whatever tends to dilute the sap, such as a damp atmosphere, a free and uninterrupted circulation, or a great accumulation of oxygen in consequence of the imperfect decomposition of carbonic acid, has the property of causing excessively rapid growth, and an exclusive production of leaf-buds.

274. Inspissated or accumulated sap is, therefore, a great cause of fertility.

275. And thin fluid, not being elaborated, is a great cause of sterility.

276. The conversion of sap into different kinds of secretion is effected by the combined action of *Air* (XI.), *Light* (XI.), and *Temperature.*

XI. AIR AND LIGHT.

277. When an embryo plant (242.) is formed within its integuments, it is usually colorless, or nearly so; but, as soon as it begins to grow, that part which approaches the light, (the stem) becomes colored, while the opposite extremity (the root) remains colorless.

278. The parts exposed to the air absorb oxygen at night, absorb carbonic acid and part with oxygen again in day-light; and thus in the daytime purify the air, and render it fit for the respiration of man.

279. The intensity of this latter phenomenon is in proportion to the intensity of solar light to which leaves are directly exposed.

280. Its cause is the decomposition of carbonic acid, the extrication of oxygen, and the acquisition by the plant of carbon in a solid state: from which, modified by the peculiar vital actions of species, color and secretions are supposed to result.

281. For it is found that the intensity of color and the quantity of secretions are in proportion to the exposure to light and air, as is shown by the deeper color of the upper side of leaves, &c.

282. And by the fact that if plants be grown in air from which light is excluded, neither color nor secretions are formed, as is exemplified in blanched vegetables; which, if even naturally poisonous, may, from want of exposure to light, become wholesome, as celery.

283. When any color appears in parts developed in the dark, it is generally caused by the absorption of such coloring matter as pre-existed in the root or other body from which the blanched shoot proceeds, as in some kinds of rhubarb when forced.

284. Or by the deposition of coloring matter formed by parts developed in light, as in the subterranean roots of beets, carrots, &c.

285. What is true of color is also true of flavor, which equally depends upon light for its existence; because flavor is produced by chemical alterations in the sap caused by exposure to light. (229.)

286. The same thing occurs in regard to nutritive matter, which in like manner is formed by the exposure of leaves to light. Thus the potato when forced in dark houses contains no more amylaceous matter than previously existed in the original tuber; but acquires it in abundance when placed in the light, and deposites it in proportion as it is influenced by light and air. Thus, also, if peaches are grown in wooden houses, at a distance from the light, they will form so little nutritive matter as to be unable to support a crop of fruit, the greater part of which will fall off. And for a similar reason, it is only the outside shoots of standard fruit trees that bear fruit. Considerations of this kind form in part the basis of pruning and training.

287. Light is the most powerful stimulus that can be employed to excite the vital actions of plants, and its energy is in proportion to its intensity; so that the direct rays of the sun will produce much more powerful effects than the diffused light of day.

288. Hence, if buds, that are very excitable are placed in a diffused light, their excitability will be checked.

289. And if buds that are very torpid are exposed to direct light, they will be stimulated into action.

290. So that what parts of a tree shall first begin to grow in the spring may be determined at the will of the cultivator.

291. This is the key to some important practices in forcing.

292. This should also cause attention to be paid to shading buds from the direct rays of the sun in particular cases: as in that of cuttings, whose buds, if too rapidly excited, might exhaust their only reservoir of sap, the stem, before new roots were formed to repair such loss.

293. As plants derive an essential part of their food from the air (280.) by the action of light, it follows that in glass-houses those which admit the greatest portion of light are the best adapted for purposes of cultivation.

294. The proportion of opaque matter in the roof of a glass-house constructed of wood varies from ⅓ to 1-7—that of an iron house does not exceed 1-23.

295. Therefore iron-roofed houses are in this respect better suited for cultivation than wooden-roofed houses.

296. And it has been found by experiment, that light passes more freely through a curvilinear than through a plain roof, and through glass forming an acute angle with the horizon than through perpendicular glass, it follows that a curvilinear roof is best, and a plain roof with glass perpendicular sides the worst adapted to the purposes of the cultivator.

297. For the same reason common green glass is less fitted for glazing forcing-houses than white crown glass.

298. Poisonous gases in very minute quantities act upon vegetation with great energy. A ten-thousandth part of sulphurous acid gas is quickly fatal to the life of plants; and hence the danger of flues heated by coal fires, and the impossibility of making many species grow in the vicinity of houses heated by coal fires, or in large towns.—*(To be continued.)*

[*From the Newark Daily Advertiser.*]

FACTS WORTH REMEMBERING.

We place below, in parallel columns, the amount received for public lands, and the annual expenditures of the government from 1821 to 1836, inclusive:

Received on account of the Public Lands.		Expenditures exclusive of the Public Debt.	
1821,	1,212,966	1821,	10,723,479 07
1822,	1,803,581	1822,	9,827,643 51
1823,	916,525	1823,	9,784,154 59
1824,	984,418	1824,	15.330,144 71
1825,	1,216,090	1825,	11,490,459 94
1826,	1,393,785	1826,	13.062.316 27
1827,	1,494,815	1827,	12,653 095 65
1828,	1,018,308	1828,	13,296,041 45
1829,	1,517,175	1829,	12.687,216 82
1830,	2,329,356	1830,	13,229,533 33
1831,	3,210,815	1831,	13,864 067 90
1832,	2,623,331	1832,	16,516,388 77
1833,	3,069,682	1833,	22,713,755 11
1834,	4,887,620	1834,	18,425,417 25
1835,	14,751,600	1835,	17,514,950 28
1836,	24,500,000	1836,	31,435,032 00

HYDROPHOBIA.

St. Andrews, L C. Feb. 26, 1836.

MESSRS EDITORS—In your paper of the 20th instant, I find a notice copied from the Journal of Commerce, that one of your most respectable merchants had been bitten by a mad dog; and being in possession of a certain remedy for that dreadful disease, hydrophobia, I beg leave to communicate it to you, in the hope that it may be received and applied in the case referred to, before it may be too late. The remedy can in no case do any harm—and I have known it tried in many cases, always with success. I have resided here more than 25 years, and although canine madness is more common here than in any other country, I have never known a fatal case of hydrophobia, when this has been applied. It is universally known and used among Canadians. I am acquainted with six persons who were bitten from eight to fifteen years ago, by dogs that were abundantly proved to be mad, from the fact that animals bitten immediately thereafter, died with every symptom of hydrophobia; but by the use of this remedy are in perfect health. I am aware that a remedy coming from such a distance, and from a stranger, will not be very likely to meet with a very cordial reception: but I am induced to give it in the hope that its evident harmlessness will ensure a trial. It as follows:

Take three spoons full of oyster shell lime, powder it and sift it through a piece of book muslin. To this add a sufficiency of egg to give it a consistency something like soft dough—fry it in a little fresh butter or olive oil. Let the patient eat this cake in the morning, and abstain from food or drink, at least six hours. This dose, repeated for three mornings in succession, is, in all cases, sufficient.

As it may be satisfactory to know something of the character of the writer, I beg leave to refer to you Charles H. Castle, Esq. Cashier of the City Bank, Montreal.

Yours, with respect,
GUY RICHARDS.

—*Canada paper.*

Department of Health.

HINTS TO PARENTS AND THE SCHOOL MASTER.

[*Extracts from the Economy of Health.**]

SECOND SEPTENNIAD—(7 to 14)

Schools.—It is in this septenniad, which may be styled, *par excellence*, the scholastic, that the seeds of much bodily ill, and moral evil are sown. In this, and often in the latter part of the first septenniad, the powers of the mind are forced, and those of the body are crippled. The progress of civilization, literature, science and refinement has rendered this state of things unavoidable. It may be mitigated, but it cannot be prevented. Knowledge is power. Bodily strength is now of little use in the struggle for power, riches and fame:—mental acquirements and endowments are now all in all.

Those who are likely to mix much with their fellow-creatures during their sojourn in this world, had better begin to do so in a public school. Knives are sharpened by being rubbed against each other; so are intellects. The flint and the steel will not emit sparks unless they come into collision: neither will brains. The coldest marble and the basest metal will glow with heat by friction; and the solid oak will burst into flame by the same operation. The emulation of a public school will call energies into action that would otherwise lie forever dormant in the human mind.

Whether the scholastic institutions be large or small, public or private, one radical evil is sure to pervade the system of education pursued therein—namely, (and I cannot repeat it too often,) the disproportion between exercise of the mind and exercise of the body—not merely as respects the sum total of each species of exercise, but the mode of its distribution. The grasp at learning is preternatural, overreaching and exhausting. The lessons imposed on youth are too long; and so, of course, are the periods of study. The consequence is, that the lesson is not got well, because it is learned amid languor and fatigue of the intellect. The grand principle of education is, or rather ought to be, the *rapid* and the *perfect* acquisition of small portions of learning at a time, the punctual premium being the interval of play. In this way, the idea of knowledge would be constantly associated with that of pleasure; and each impression on the juvenile mind being vivid and distinct, would consequently be lasting.

But if the periods of study in the first years of the second septenniad, were reduced in length, as well as in the whole daily amount, I am far from thinking that the sum total of elementary learning acquired during the scholastic septenniad would be thereby diminished. What is lost in letters will be gained in health; and this profitable exchange may enable the youth to sustain those increased exertions of the intellect which devolve on ulterior stages of scholastic and collegiate discipline. It is to be remembered, also, that the great majority of pupils are designed for other than the learned professions, and to them a MODICUM of health is often of more value than a MAGNUM of literature.

No public school should be without a play-ground; and no play-ground without gymnasium of some kind, for the lighter modes of athletic exercise. The swinging apparatus at the military asylum in Chelsea, seems well calculated for effecting that combination of active and passive exercise, so peculiarly adapted to the human frame in the present state of civilization and refinement. We have more mind and less muscle than the Lacedæmonians; and, therefore, art must accomplish what strength fails to do. It is in a more advanced period of life, that *passive* exercise is to be preferred to *active;* in the second septenniad, the *latter* should have the preponderance. In all gymnastic exercises, however, great regard should be paid to the constitutions of individuals. There are some youths, where a disposition to affections of the heart and great vessels prevails; and to these, all strong exercise is injurious. Those, also, who are predisposed to pulmonary complaints must be cautious of athletic exercises.

Food.—This should be simple and substantial, rather than abstemious. The fabric that is daily building up, should have an ample supply of sound materials.

Beverage.—A great error has been committed by modern mothers, in substituting for the salutary prescription of Pindar, ("water is best,") the daily glass of wine, with cake or condiment, for the smiling progeny round the table after dinner. The juvenile heart dances joyously enough to the music of the animal spirits—and the rosy current of circulation runs its many rounds as rapidly as need be, without impetus from wine. The practice in question is reprehensible on more accounts than one. It early establishes the *habit* of pampering the appetite—a habit that leads to countless ills in after life. It over stimulates the organs of digestion, at a period when their nerves are supersensitive—their excitabilities exuberant, and their sympathies most active and multiplied. If such be the case in youth, can we wonder at the universality of dyspeptic complaints in middle age? It is to be remarked, that this practice is less prevalent among the higher ranks of life, than among the various subordinate grades. It increases as we descend, till we shudder at the sight of liquid fire, exhibited to the sickly infant in the sordid hovel! On such a subject, need I say more? or could I say less? Bad habits are enough *learned*—they ought never to be *taught!*

---

* The author of this work, James Johnson, is one of the most eminent physicians of the age.

The passions.—It is in this epoch, as in the previous one, that the PASSIONS of youth should be controlled—even by punishments if necessary. If the BOY is taught, in early life, to respect the feelings, the comforts and the happiness of his playmates and school-fellows, the MAN will afterwards obey the laws of God and his country in society at large.—The tyranny which the strong often exercise over the weak, in schools, and the annoyances which the vicious occasion to the well disposed youth, ought to be punished with ten times more severity than neglect of duty.

Contagion of vice.—Vice is a contagion of the most terrible virulence. It spreads with the rapidity of lightning—and every tainted individual becomes a new focus, both for the concentration and diffusion of the poison! It is a melancholy truth, that, in exact proportion as human beings (whether men, women or children,) become congregated together, *there* will EVIL be engendered, propagated and multiplied. * * * Pupils in all ages were in the habit of teaching each other—MISCHIEF: Lancaster caused them to teach each other—KNOWLEDGE. This last is "mutual *in*struction"—the former is "mutual *de*struction." But the new system did not supersede the old; it was only superadded to it It is, therefore, the bounden duty, as it should be the paramount object, of all parents, guardians and tutors, to circumscribe, as much as possible, this "evil communication," which not only "corrupts good manners," but, perchance, good morals in the bargain!

Objects and ends of education.—The two grand or cardinal objects of education, in my humble opinion, are, *first*, to curb the evil propensities of our nature, by *increasing* our knowledge or wisdom—and, *secondly*, to make us useful to society. That learning or knowledge does elevate the mind, humanize the heart, and prevent barbarism of manners, we have the best authority of antiquity. There can be no doubt that these effects flow, more or less, from all kinds of learning or knowledge; they are, however, the more especial results of what may be termed, in a comprehensive sense, CLASSICAL LEARNING—or the study of great authors, modern as well as ancient. But, to obtain the second grand object of education—to become useful members of society, we must acquire knowledge of a very different kind—namely, SCIENCE. It will not be sufficient to study philosophy, belles-lettres, rhetoric, poetry, &c.—we must learn the exact and inexact sciences—the NATURE OF THINGS. A good education, then, is a happy combination, or a just proportion, of learning and knowledge—or, in other words, of literature and science.—The proportion must vary, no doubt, according to the destination of the individual.

Greek and Latin.—I venture to doubt the policy of employing one-tenth, or more, of our short span of existence, in the acquirement of two dead languages, which we are forced to abandon almost immediately after they are learned, and before we can do much more than view, at a distance, the fruits which they display. * * * To the multitute, indeed, the dead languages are very nearly a dead loss—and for this good reason, that their avocations and pursuits through life prevent them from unlocking the magazines of learning, to which those languages are merely the keys. * * * What is the difference, as respects the individual, between the study of an original author, and a good translation? I very much doubt whether the results would be dissimilar in kind, or perhaps even in degree.

Female education is more detrimental to health and happiness than that of the male. Its grasp, its aim, is at accomplishments, rather than at acquirements—at gilding rather than at gold—at such ornaments as may dazzle by their lustre and consume themselves, in a few years, by the intensity of their own brightness, rather than those which radiate a steady light till the lamp of life is extinguished. They are most properly termed *accomplishments;* because they are designed to accomplish a certain object—MATRIMONY. That end, or rather, beginning, obtained, they are about as useful to their owner as a rudder is to a sheer hulk, moored head and stern in Portsmouth harbor—the lease of a house after the time is expired—or a pair of wooden shoes during a paroxysm of gout.

Music.—Every thing that merely delights the *senses*, without the *understanding*, must come under the head of *sensual* gratifications, which tend, by their very nature, to excess. Music, like wine, exhilarates in small quantities, but intoxicates in large. The indulgence of either beyond the limits of moderation is dangerous. * * * If some of that time which is spent on the piano, the harp, and the guitar, were dedicated to the elements of science, or, at all events, to useful information, as modern languages, history, astronomy, geography, and even mathematics, there would be better wives and mothers, than when the mind is left, comparatively, an uncultivated blank, in order to pamper the single sense of hearing!

SAYINGS OF WISE MEN.

He is the best friend who has not occasion to put other people's hands to the ends of his own arms.—*Rousseau.* There is nothing more true than that what we do by ourselves, is always done in a more satisfactory manner than when it is done by others.

He whose expenditures exceeds his revenues must be poor; but he must be rich who receives more than he disburses.—*La Bruy*

He who has gotten a good son-in-law has found a son; but he who has met with a bad one has lost a daughter.—*French.*

He who swallows up the substance of the poor, will find, in the end, that it contains a bone to choke him.—*French.*

He who gives away his entire property before his death, purchases much suffering (deep regrets) for himself.

That which makes us so discontented with our own condition, is the false and exaggerated estimate we are apt to form of the happiness of others—*Fr.*

What orators fail in, as to *depth*, they make up to you in *length.—Montesquieu.*

What is earned by the flute is spent on the drum.—*Fr.* Money earned with little labor is generally spent with little consideration.

He who has offended you will never pardon you.—*Ital. prov.* Many persons feel an irreconcilable enmity towards those whom they have injured.

He who bestows on you more attention than usual, either has deceived you, or has the intention to do so.—*Ib.*

Men by doing nothing, learn to commit evil.—*Cato.* Idleness may be said to be the hot-bed of ignorance and evil.

It belongs to our nature to err, but it is the part of a fool to persevere in error. The mind of the wise man, therefore, is ever open to conviction, and when he discovers himself to be in an error, he displays true wisdom by receding; while the fool, ever obstinate and pertinaceous, continues to act on false principles, which he is ashamed to retract.

The COMMON SCHOOL ASSISTANT, a monthly publication of eight quarto pages, conducted by J. ORVILLE TAYLOR, and devoted to the improvement of Common Schools and the education of teachers, is published at No. 71 State-street, at fifty cents per annum, in advance.

RECEIPTS, from July 25 to Aug. 21, inclusive.—Nos. under 10 not noticed.

Beattiesford, N. C.	11	*Laporte, Ia.	60	*Stoney P't Mills, Va.	22
Brandenburgh, Ky.	20	Lexington, Ky.	11	Suffield, Ct.	11
*Brooklyn, Ct.	25	Leon Mills, Catt.	11	*St. Louis, Mo.	103
*Baltimore, Md.	64	*Lake C. H. Ia.	22	*Stamford, Del.	23
*Centreville, Md.	67	*Murfreesboro, Ten.	106	Sag-Harbor, Suff.	12
*Catharines, Chem.	26	Malone, Frank.	12	*Troy, Rens.	29
Cambridge, Wash.	43	*Montreal, L. C.	28	Union Square, Os.	11
*Charlotte, C. H. Va.	33	Moore's Salt Works, O.	17	*Windham, Ct.	17
Dawsonville, Md.	11	*Millstone, N. J.	22	Worcester, Mass.	11
Dundee, L. C.	14	Newburgh, Or.	14	Williamsbury, Pa.	11
*Damascoville, O.	55	*New-York city,	85	Warrenton, Va.	11
*Easton, Md.	44	*New Albany, Ia.	27	Winchester, Va.	11
Edwardsville, Mich.	11	Hartford, O.	13	*West Alburgh, Vt.	15
Erwin, Steu.	11	*Princess Ann, Md.	29	Yough Glades, Md.	11
Fort Madison, W.T.	11	Pottsdam, N. C.	11	*Yorktown, Westch.	12
*Geo'town X Rds. Md.	55	*Penn-Yan, Yates,	18	*Ypsilanti, Mich.	28
*Ithaca, Tomp.	26				

* Including former payments.

Total volumes subscribed for during last 27 days, 1,025.

PRICE CURRENT.

ARTICLES.	New-York. Aug. 19.	Boston. Aug. 16.	Philadel'a. Aug. 14.	Baltimore. Aug. 16.
Beans white, bush........	2 00.. 2 25	1 37.. 1 75	1 37..1 62	1 25..1 50
Beef, best, cwt...........	6 00.. 7 50	5 00.. 7 50	6 00..8 00	7 50..8 00
Pork, per cwt............	9 00..12 00	8 00.. 9 00	8 00.11 00	6 00..7 50
Butter, fresh, pound, ...	18.. 22	20.. 25	10.. 14	20.. 25
Cheese, pound, ...	8.. 13	9.. 13	10.. 11	9.. 10
Flour, best, bbl......	9 00.. 9 25	9 00.. 9 25	8 75..9 50	8 00..9 50
GRAIN—Wheat, bushel, ..	1 30.. 1 70	....	1 85..2 00	1 50..1 65
Rye, do. ..	85.. 88	1 00.. 1 05	1 00..	.. 65
Oats, do. ..	.. 75	75.. 78	58.. 60	38.. 40
Corn, do. ..	1 04.. 1 06	1 08.. 1 12	1 06..1 10	1 00..1 04
SEEDS—Red Clover, lb...	13	13.. 14	9.. 11	7½.. 8½
Timothy, bushel,.	2 50.. 2 75	2 75.. 3 00	1 85	3 50..4 00
WOOL—Saxony, fleece, lb.	75.. 80	65.. 70	65.. 73	40.. 50
Merino, lb..... .	50.. 68	40.. 65	40.. 62	25.. 40
1-4 and com. lb...	40.. 60	40.. 45	40.. 44	20.. 30
Sheep, ...	2 50.. 5 00	1 67.. 3 00		
Cows and Calves,.......	22 00..42 00	23 00..42 00		9 00..40 0
Cotton,..........	7.. 12	....	9.. 12	10.. 12

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

VOL. IV. ALBANY, OCTOBER, 1837. No. 8.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor*.
☞ *Office No. 3 Washington-street, opposite Congress Hall.* ☜
TERMS.—FIFTY CENTS PER ANNUM, TO BE PAID IN ADVANCE.

Special Agents.—JUDAH DOBSON, Philadelphia—Messrs. HOVEY, Boston—ISRAEL POST & CO. Booksellers, 88 Bowery; ALEX. SMITH, Seedsman, Broadway. ALEX. WALSH, Lansingburgh, gratuitous agent. Any gentleman who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

FARMING CAPITAL.

The success and profits of farming depend very much upon the command of farming capital, and upon its judicious application. We have not now reference to that system of exhausting husbandry,—which has seriously impoverished the old cultivated districts of our country, and which is fast impoverishing those more recently brought under culture—but to the *new* system, which not only aims at the largest profits upon the outlay, but keeps in view the *augmentation*, or at least the *preservation*, of the natural fertility of the soil. It is easier to *preserve* fertility, than to *restore* it to a soil which has become exhausted by injudicious cropping.

There are two prominent faults in American farming—we cultivate *too much land*, for the capital employed—and in the second place, we do not take the right method of preserving fertility, by alternating crops, and by blending cattle with tillage husbandry. The consequence of the first is, that none of the land is so *well*, or *profitably* cultivated as it ought to be. By keeping a portion of our land under the plough, and almost wholly in grain crops—and another portion in "natural" meadow, the profits of culture are constantly diminishing, and the land is ultimately "*worn out*;" while the deterioration is accelerated by the want of farm stock to convert the forage into manure, and the want of economy and judgment in saving and applying the little manure that is made.

To *keep* land in good heart, or to *augment* fertility, it is essential, among other things, to consume the main products upon the farm, in order that the dung, which the farm stock makes, shall *keep the land rich*;—that the land be *well drained*, that it may develope all its resources, which it can never do if water reposes either upon, or within eighteen inches of the surface;—and that it be *kept clean*. All these matters, as farm stock, draining, and clean tillage, require labor and capital. Instead, however, of laying out the profits of a farm to keep it good, or improve its condition, these profits are generally applied to the enlargement of its size, to speculation, or to some purpose foreign to the preservation of fertility, or to the improvement of the soil.

The capital required for the profitable management of a farm, depends much upon the quality of the soil, the nature of the husbandry which is adopted upon it, and the state of the market. It is a well established fact, that farm stock can be purchased cheaper, and labor and every thing else had upon better terms—for CASH, than on CREDIT. And it is equally a self-evident proposition, that he who is *obliged* to sell the products of his farm, to meet current expenses, seldom obtains so fair a price, as he who can choose his time and his market for the sale of his produce. The farmer, therefore, who keeps the *ready means* in reserve, that he may buy and sell when it best suits his interest, has a manifest advantage over him who buys upon credit, and sells from necessity. But it is principally in reference to the *improvement of the farm*, and the consequent increase of the profits of the labor which is bestowed upon it, that farming capital is particularly desirable. If, by a moderate expenditure in making land rich, and dry and clean, we can double its products, we effect a saving of one-half of our labor; or, in other words. we obtain as much from the fifty *improved* acres, as we do from one hundred acres in the old way, and with half the labor.

As pertinent to this subject, we subjoin some extracts from British Husbandry, persuaded that the remarks they contain apply to American with almost as great force as they do to British husbandry.

"There is no mistake more common," says our authority, "than that of supposing, that the more land a man holds, the greater must be his profits; for the profit does not arise from the land itself, but from the manner of using it: the best soil may be made unproductive by bad management, while the worst may be rendered profitable by the opposite course; *but without sufficient capital no land can be properly cultivated.* There is nothing to which capital can be applied with greater certainty of a fair return for its liberal expenditure, when correctly employed, than land; but, on the other hand, there is nothing more ruinous, when the capital is either insufficient, or injudiciously laid out. In fact,—assuming always that the expenditure be directed with judgment—it will be found that the profit upon the outlay increases, *in more than a proportionate degree to its amount:* thus, supposing five pounds to be the lowest, and ten the highest sum that can be employed in the common culture of the same acre of land, it is more than probable that, if the five pounds return at the rate of ten per cent, the ten will yield twenty, or any intermediate sum, at the same progressive ratio. Now, admitting that to be true,—and it is presumed that no experienced agriculturist will doubt it,—it follows, *that* 1000*l. expended in the cultivation of* 200 *acres, will only yield a profit of* 100*l while, if applied to no more than* 100 *acres, it would produce* 200*l.;* wherefore, although a farmer of limited capital may not be driven to the extremity we have already supposed, [distress, duns and final ruin consequent upon deficiency of stock, imperfect tillage and scanty crops,] and although he may be able to carry on his business with a certain degree of advantage, it is yet evident that *his profit would be increased by diminishing the quantity of his land.* Many a one has been ruined by a large farm, who might have acquired a competency with one of half the size. It therefore behooves a man to weigh well the charges with his means, and not allow himself to be seduced by any ideal prospect of gain, into the imprudence of entering upon a larger farm than his property will enable him to manage with the spirit necessary to ensure success.

"Much larger capital than was formerly requisite has become indispensable since the general adoption of the alternate system of husbandry; for the foundation of that system, and of all good farming, is the support of more live stock than was possible when the land was brought round to the reproduction of corn [grain] by means of repeated fallows, instead of green crops. The charges, being thus confined to those incidental to mere tillage, were comparatively light; whereas, now, there are arable farms without an acre of pasture, except perhaps a paddock for cows, on which live stock is kept to an amount far beyond the sum required for cultivation. But the produce is proportionally large; and more corn and meat are obtained from inferior soils in Norfolk, and other counties where the same plan is pursued, than from some of the best land in the kingdom under less spirited management. It is quite manifest that the more cattle and sheep are well maintained upon any given space of ground, the better will it be manured; and therefore, of two farmers, each possessing the same quantity of land, and devoting the same portion of it to grain, he who can support the most live stock, will not only realize the customary profits of that stock, but will also grow the most corn.

"Except in situations where extraneous manure can be procured, it is only by the union of feeding and tillage, that land can be retained in a high degree of fertility. Were the system, therefore, more generally adopted—especially on poor soils—of laying down a considerable part to grass, there can be no doubt that, if again broken up, its productive powers would be found improved, through the meliorating effects of pasturage and rest; and while the gross produce would be thereby ultimately increased, it would so far diminish the expenses of labor, as in many cases to counterbalance the cost of the stock. The farmer who has the means, as well as the discernment, to make some of the various branches of grazing, or the dairy, an essential part of his business, and thus nurses a portion of his land, preserves the tillage in constant heart with the additional manure; and although the gross amount of corn produced may be less than if more ground were under the plough, yet the acreable produce will certainly be greater, and the deficiency will more than be made up by the supply of cheese and butter, and of flesh. He also divides his risk, so that, in the event of an unfavorable harvest, the loss upon his crops will probably be reimbursed by the profit on his cattle. It is a common observation, that graziers and dairymen are the most regular rent-payers; to which it may be added, that the bane of all necessitous farmers, and the ruin of land, are under-stocking and over-cropping.

"The multitude of circumstances to be considered,—each in some degree varying upon every farm, and with every farmer—preclude the possibility of forming any calculation that would be precisely applicable to every case; but, presuming the *land to be of medium quality*, and under an ordinary course of cultivation, the live stock to be of a good description, and the implements new, the requisite amount cannot be computed at less than from 7*l.* to 10*l.* per acre. Less might perhaps *do*, and in many cases no doubt is *made to do.* An active, intelligent man, who watches opportunities for picking up bargains of stock and implements, who is in tolerable credit, and is ingenious in devising expedients to supply the want of cash, may contrive to get through where one of less acuteness would fail."

In order that the readers of the Cultivator may form an idea of the capital deemed necessary in Britain to manage a farm with spirit and profit, we well give an abstract from Prof. Low's estimate. It is made for a farm of 500 acres, and embraces all the expenses that would be required by an in-going tenant, or a person beginning farming operations, for eighteen months, till he is certain of being able to realize capital from the sale of the products of the farm. The estimate is also predicated upon a five years' rotation, during which each and every department of the farm is successively in fallow and fallow crops, grain, grass and pasture. As a detail of these crops for a year will afford our readers a tolerable idea of Scotch farming, and of their system of rotation, we copy it entire:

"1st. 100 acres in corn, namely, oats.

"2d. 100 acres in fallow, fallow crops and tares, viz:
60 acres in turnips.
30 acres in summer fallow.
5 acres in potatoes.
5 acres in tares.
100 acres.

"3d. 100 acres in corn, with which are sown clover and rye grass seeds, namely:
60 acres in barley after turnips.
40 acres in wheat, after summer fallow, potatoes and tares.
100 acres.

"4th. 100 acres in young grass, namely:
28 acres for hay and green forage.
72 acres for pasture.
100 acres.

"5th. 100 acres in grass in its second year for pasture.

"Under this system of management the crops will succeed to each other in the order mentioned; and the farm will in every year be in five divisions, namely: 100 acres in oats; 100 in fallow, turnips, potatoes and tares; 100 in wheat and barley; 100 in young grass; and 100 in grass in its second year."

Two things are observable in this course: no field is subject to tillage more than *three* years in succession; and no field remains in grass or pasture more than *two* years in succession.

To begin to manage such a farm, under such a rotation, requires a capital, according to our author, of £3,841 11 6, exclusive of rent, to be expended as follows:

1 Implements,.........		£473	7	4
2 Live stock,.............................		1,423	15	0
3 Seeds,............................. ..		273	18	0
4 Manures, ...		516	10	0
5 Labor, &c.............................		528	17	6
6 Maintenance of horses,..........		243	9	11
7 Burdens, (as taxes, &c.)................		31	15	9
		£3,491	11	6
To this sum should be added the expense of furnishing a dwelling-house, ...	£200			
Family expenses for 1½ years, ...	150			
		350	0	0
		£3,841	11	6
Deduct stock and produce which may be sold during the 1½ years,..........................		995	17	9
Nett capital required,...................		£2,845	13	9

Or at the rate of £5 13 10 per acre, equal to $24.42.

"A want of the necessary funds," says Low, "is often more injurious to a farmer, than even an obligation to pay a high rent. With an inadequate capital, he is impeded at every step. He cannot render justice to his farm; he must often bring his goods prematurely to market to supply his wants, and he will pay largely for the credit which he is compelled to seek. The farmer who has ready money at his command has, like every other trader, a great advantage over one who is forced to seek credit, and will be enabled to make a profit of many transactions on which the other would sustain a loss."

We find in the last *Farmers' Cabinet*, a notable instance recorded, of the profitable application of capital, in *improving worn-out land*, very apposite to our subject. The writer is one of the Society of Friends, and resides near Wilmington, in the state of Delaware. The experiment and outlay were made upon a *worn-out field*, which had yielded only "seven bushels of corn to the acre," and the whole amount of verdure which grew upon the field when it came into the possession of the writer, "appeared insufficient for half a dozen sheep the summer season." The following is an exhibit of the expenditure and products for three years, as copied from the Farm Ledger:

1835. *Field No.* 3. *Dr.*		1835. *Per contra.* *Cr.*	
1st. 1 mo.		300 bu. corn, at 80 cts.	$240 00
500 bushels lime, at 20 cts.	$100 00	175 bu. potatoes, at 30 cts.	52 50
150 cart loads manure, at $1.25 per load,.........	137 50	1836.	
200 bushels of bone dust, at 30 cents per bushel,.....	60 00	96½ bu. wheat, at $2, ...	193 00
100 bushels of ground oyster shells,..............	15 00	10 loads of corn fodder,...	15 00
75 cart-loads of manure, at $1.25, ...	93 75	9 loads of wheat straw, ...	18 00
Clover and timothy seed,..	12 00	3 months pasture for 8 cattle, ...	24 25
15 bu. seed wheat,..	22 50	1837.	
Cost of ten acres of land,..	480 00	31½ tons hay, at $14,......	437 50
	$970 75		$980 25

"The interest account against the field," says the writer, "is not carried out, but the second crop, now growing, will considerably more than balance it, leaving the field to stand against the labor of cultivating three crops, and taking them to market. It well be seen that the profits of this operation have all grown out of the manure."

The principles of improved farming, which the preceding facts and estimates are intended to illustrate and inculcate, are,

1. That capital is requisite in the spirited and profitable management of a farm; and that it ought not to be diverted to its enlargement, or to extraneous matters, until the cultivated part is brought to its most productive bearing.

2. That farm stock is necessary, not only as a source of profit on account of the meat, milk and wool which they yield, with comparatively little labor,—but as a source of fertility to the soil which no good farmer can or will dispense with. And,

3. That alternation of crops, as grain, grass, roots and pasture, form the true basis of good husbandry.

LIVE FENCES,

Are annually becoming more and more a matter of interest to the American public, particularly to the farmers of the Prairie West, where there is already a scarcity of timber land. Our fencing timber is rapidly diminishing, and but a small portion of our country is furnished with stone for fencing purposes. Live fences, therefore, must be sooner or later resorted to, as a matter of necessity, and they may be resorted to, we are persuaded, as matter of ultimate economy, in districts where fencing timber and stones are scarce or dear. Caleb Kirk, of Delaware, to whom we have before adverted as the writer of some excellent essays upon hedges, states in one of his essays, that an Englishman, located in his neighborhood, was in the habit of contracting to plant and take care of thorn hedge till it became an efficient barrier to cattle, receiving his pay as the work progressed, at *one dollar the rod.* In a period of twenty years, therefore, the live fence would cost much less than the dead fence, with the advantage to the former superadded, that at the end of the twenty years, the live fence would be complete, and in order, while the dead fence would be required to be rebuilt with a new outlay. We are satisfied, from our own experience and observation, that we have abundant materials, in the indigenous growth of our country, for live fences, and that we can, after we have profited more from experience,—and the sooner we acquire this the better,—advantageously employ them in growing live fences. The greatest bar to our progress in the business is, *want of patience*, and a just perception of our ultimate interest. If we could grow live fences as readily as we can construct dead ones, there would be no hesitation in resorting to them, however expensive. But the idea of devoting six or seven years to bringing them to perfection, *perhaps longer than our natural lease of life*, deters many from planting hedges, as it does fruit and ornamental trees. The object of the parent is almost invariably, not only to provide the means of promoting his own comfort, but to lay up an inheritance for his children, and this, he should consider, is as effectually done by enhancing the value of the acres, which are to constitute the patrimony, by good and permanent live fences, orchards of good fruit, and rural embellishments, as by bank bills or wild lands in the far west. Live fences not only serve to enclose lands, but afford a highly beneficial shelter to farm crops, and, if kept in order, add greatly to the beauty of the landscape.

In the few remarks we are about to offer on this subject, we shall direct the reader's attention,

1. To the material to be employed,
2. To the procuring the plants,
3. To the preparation of the ground and planting; and,
4. To the management of the hedge.

THE MATERIAL TO BE EMPLOYED.—The best material, we believe, is the thorn *(Cratægus)* most indigenous in the district where it is to be used—because such species must be *best* adapted to the climate and soil. The American thorn is generally of stouter growth than the European, which in the old continent is used for hedges, at least with us, and is equally well armed with thorns. Of the native thorn, nine species are enumerated by botanists, viz:

1. *Cratægus coccinea*, berries large, red and pleasant tasted, and grows from Carolina to Canada. Two varieties.—*Eaton.*
2. *C pyrifolia*, (pear leaved,) grows from Pennsylvania to Carolina, west to Michigan.—*Beck*
3. *C. populifolia*, (poplar leaved,) grows in Pennsylvania, &c. berries small and red.—*Eaton.*
4. *C. elliptica*—berries oval, 5 seeded, small, red—grows from Canada to Carolina.—*Beck.*
5. *C. Glandulosa*, (full of kernels,) fruit scarlet, middle sized, oval, 5 seeded. Canada and Allegany mountains—*Ib.*
6. *C. flacca*, (yellow berried,) grows in Vermont.—*Eaton.*
7. *C. punctata*, two varieties, one having red and other yellow berries. Tree dwarfish—grows from Carolina to Georgia.—*Beck.*
8. *C crus-galli*, fruit small, red, mostly 1 seeded. Long spines—grows from Canada to Carolina—several varieties.—*Beck.* Var. *splendens*, *pyracanthifolia*, and *salisifolia.*—*Eaton.*
9 *C. parviflora*, (small-flowered,) fruit large, yellow, with 5 bony 1 seeded nuts—grows four feet high, from Canada to Carolina, in sandy woods.

The *C. oxyacantha*, or quickset thorn of Europe, has been introduced, and used to some extent among us; but we do not think it is so well adapted to our climate, particularly north of lat. 42°, as our native species After a trial of seven years, we have been obliged to give it up, and have substituted native plants in its stead.

There are besides the foregoing, several other plants, which have been recommended, and partially employed in live fences. Among these we may name the following:

1. Red Cedar, recommended by the late John Taylor, of Virginia, and others. We have seen this plant in hedge in Maryland, but have never seen it make a good hedge.

2. The Wild Crab, though we have not seen it tried, seems well adapted for live fence—being hardy and well armed with spine.

3. The Honey or Three Thorned Locust, (*Gleditschia triacanthos,*) though belonging to the class of large trees, yet by close planting and judicious clipping, may be kept to a dwarf size. The male plant is armed with very long and strong spines, the female plant has fewer and smaller spines, and bears an abundance of seeds. The plant is said to be indigenous to the country south and west of New-Jersey, and is found to be hardy in lat. 42° N. We are experimenting with it as a material for hedges, and our confidence in it is becoming stronger as we progress. It is of rapid growth, and will require clipping probably twice in a season. It will ultimately make a very strong fence, if properly trained in time.

4. The Buck Thorn—*(Rhamnus catharticus.)* This may be termed a small tree, or large shrub, producing an abundance of black berries, often used medicinally as a cathartic—not armed with spines, but growing very close and compact. We long doubted whether this would make an efficient fence, till we were undeceived by a visit to J. H. Derby, Esq. of Salem, Mass. where we saw one of the most beautiful and efficient hedges that ever met our eye, formed of the Buck thorn. We purchased a thousand plants, and now have them in training as a hedge. We apprehend it will require a longer time to make of them a strong fence, than from the other plants we have enumerated.

5. Privet or Prim, *(Lagustrum vulgare,)* an exotic shrub, growing six to eight feet high, without spines, for the last ten years perfectly hardy in the neighborhood of Albany—branches very dense, and retaining their green foliage often to midwinter; makes a beautiful *ornamental* hedge about court yards and gardens, when symmetrically clipped, and a very *useful* one, in time, if we are to credit the reports of our grandfathers: for in olden time, prim hedges were extensively cultivated among us, particularly on Long Island, in Connecticut, &c. In two towns of Suffolk, according to Mr. L'Hommedieu, there were no less than four hundred miles of prim and black thorn hedges some sixty years ago. The cause of their sudden and general decay, at that time, has never been satisfactorily explained; yet we are certain of the fact, that for the last fifteen years the prim in this neighborhood has proved perfectly hardy, and has not been affected by any disease or insect enemy. It possesses one advantage over all the other plants we have named: it grows freely from cuttings, which may be readily transported hundreds of miles, in winter, with safety.

6. The common Beach is extensively employed in the Netherlands for hedges. They are beautiful and strong, the plants being trained alternately right and left, diagonally, resembling lattice work, though the labor in training is considerable. Beach mast may be had in any quantity in the north, and may be readily transported.

7. The Osage Orange, *(Maclura aurantiaca,)* is strongly recommended as a suitable plant for hedges in the southern and middle states. Although a native of the south-western states, we are disappointed in not finding it noticed by either Eaton or Beck. It forms a tree of the second class, is armed with strong spines, and has a tolerable thrifty growth; it will not bear our northern winters, but we think may be cultivated south of the Highlands, or lat. 40.

8. The Cherokee Rose, we are told, makes a beautiful hedge in the southern states, but we do not learn that it will succeed north of Maryland.

9. The last plant we shall name is the Japan Quince, *(Cydonia*—formerly *Pyrus Japonica.)* It is a shrub growing six to eight feet high, abundantly armed with spines, handsome foliage and splendid scarlet flowers—a native, as its name imports, of Japan. The wood is hard and the branches close, and after a few years a hedge of it would become impervious to cattle and hogs. It is cultivated in shrubberies as an ornamental plant, on account of its bright scarlet flowers. Another species has white flowers. This plant may be rapidly multiplied, by *cuttings* of the root.

We shall postpone our further remarks upon live fences till our November number, and in the mean time would respectfully invite gentlemen who have had experience, in this country, in cultivating hedges, to furnish us with any facts they may possess, and which may assist to enlighten the public mind in a matter which is daily becoming more important to the American husbandman.

BONE MANURE.

Agreeably to our promise, we now proceed to lay before the readers of the Cultivator the results of our reading, coupled with our experience, in regard to bone manure.

The bones of domestic animals are found to contain about equal portions of phosphate of lime and gelatine; those of young animals containing more of the latter, and the bones of old animals more of the former. The gelatine is highly nutritive to plants, and phosphate of lime enters largely into the structure of many species. To bring on a decomposition of bones, and render their fertilizing properties available to the wants of growing crops, it is necessary to crush or grind them—and their immediate benefit is in proportion to their fineness, and rapid decomposition in the soil—though ultimately they impart to the soil all their fertilizing properties, if they are broken to the size of one, two or three inches. In powder, or dust, their effect is at first more powerful, but less abiding. So, too, the like happens if the bones are brought into a state of partial fermentation, so as to give off a strong odour, by mixing them with lime, or ashes, or manure and moisture, before they are applied to the soil, and thereby hastening decomposition; and indeed this is the common practice, when it is desired to have them produce an immediate effect. To reduce bones to a proper size for agricultural purposes, bone mills have been erected, consisting of a series of cast iron rollers, formed with deeply indented rims, and teeth progressively more closely fixed. Many British farmers have erected small machines, with two cylinders of cast iron, with teeth, which lock into each other, by which they are broken into small pieces. We have had more than sixty horse cart-loads of bones, which cost us half a dollar a load, crushed in a plaster mill, though not made very fine, for which we paid 12½ cents per bushel as toll. The value of bone dust as a manure, in Great Britain, may be judged of from the following rates of prices, which we quote from one of the most recent agricultural publications: "The price commonly averages, for the dust, from 2s. 6d. to 3s. and in some late instances even 3s. 6d. have been paid—for pieces [of inch, three-quarter inch and half inch] from 2s. to 3s. 6d. according to size—and 1s. 10d. for rough bones, per imperial bushel."—*Br. Husb.* The reader will bear in mind, that the English shilling is a fraction over 22 cents. Prices have not yet attained this high pitch with us. The English dealers make no allowance on bones which have gone through the process of boiling, through this process evidently deprives them of a portion of their oil, and consequently diminishes, in a measure, their enriching properties.

From the experiments detailed in the British books, made with bone manure, we abstract the following, as affording evidence of its enriching qualities, and of the soil and crops which it most benefits.

On a poor soil in Yorkshire, which would no longer bear turnips, even with tolerable manuring, twelve to twenty bushels bone dust to the acre, put in the drills, the turnip crop was rendered excellent, and the following crops were much improved.

Six hundred bushels were spread upon twenty-four acres of dry, sandy, gravelly pasture, which had been laid down ten years. The condition of the cows kept upon it was so materially increased, that double the quantity of butter was made from them that was made from cows grazed upon land of similar quality, but not boned.

Twenty-five bushels applied to an acre of turnips, brought them above ground the third day, and into rough leaf the tenth. On an adjoining acre, dressed with twenty-five loads of barn-yard manure, the turnips did not appear till the fifth day, and were not fit to hoe before the 20th.

Mr. Graburn applied thirty bushels to the acre, and to an adjoining acre eight loads of dung, and the dung repeated upon the latter the third and fifth years, and the whole then sown with wheat. The turnips and wheat still showed the best crop on the boned part.

Capt. Ogilvie made a series of trials, applying fifteen to twenty bushels to the acre; and after five years he found all the successive crops of turnips, barley and grass seeds decidedly superior to those which had been produced by other manure.

The quantity applied to the acre varies materially, according to size. Of the dust, twenty bushels is deemed adequate for an acre; of the half inch thirty bushels, and of the inch thirty-five to forty bushels, are generally given. The dust is preferred for grass lands and turnips A greater quantity does not seem to increase, though it is believed to prolong, the good effect. Instances are quoted of lands showing the sensible benefits of bone manure for fifteen years after it had been applied.

The soils to which bone manures are best adapted, "are those of a light, warm nature; for on wet and cold grounds they have rarely been found to produce any sensible benefit." "On *heavy loams and clays*, the accounts of their operation have almost invariably been unfavorable; and it may be laid down as a necessary qualification in a soil fit for the application of bones, that it should be dry." "Upon *very thin sandy lands*," says the Doncaster Report, which is the best guide in this matter, "the value of bone manure is not be to estimated; it is not only found to benefit the particular crop to which it is applied, but extends through the whole course of crops; and even in the succeeding courses, its effects are visible in the improved quality of the land, and the efficiency of a smaller quantity than would at first have ensured a crop." On *dry limestones*, the same favorable results have been obtained; and no failures are noticed. Upon the *wolds*, a description of light thin lands, which were formerly in a manner unproductive, bone dust has brought thousands of acres into a most productive state, augmenting the crop always four and five, and often ten fold. On *light loams*, the Doncaster Committee give bones a preference to farm-yard dung. On *peat soils*, previously drained and laid dry, their advantages are reported to be so striking, that from fifteen to twenty bushels per acre, have been found to very far surpass the ordinary dressing of stable dung, and even of lime and pigeons' dung. On *gravels* their effect is more equivocal; on those that are wet, the application has been found decidedly unfavorable. Bones operate best on dry light soils which are deficient in carbonate of lime.

We have used crushed bones to some extent; and our experience goes to corroborate the preceding remarks, which are principally drawn from "*British Husbandry.*" When used dry, and unfermented, their benefits have been more perceptible, with us, the second and third years, than in the first year; and when fermented, by adding ashes and water, and the process, we think, carried too far, the effect has been too stimulating, causing the corn and grain to lodge. Too large doses have probably been applied.

We are more familiar with another species of animal manure,—the refuse of comb-manufactories, which comprises the shavings and clippings of the horns and hoofs of cattle, than with bones. These contain more gelatine and less lime—more animal, and less earthy matter, than bones, and they readily decompose, if buried in the soil, without previous fermentation. They are applied in about the same proportion as bone dust, and are considered more fertilizing.

In the application of both bone dust and horn shavings, it is preferable to have these materials deposited near the surface than deep in the soil—to harrow, rather than to plough them in.

Both of these materials are advantageously used in composts, that is, mixed with earth, manure, lime, ashes, &c. Some mix fifty bushels of bone with five loads of burnt clay; others forty bushels with five loads of farm-yard manure, and a quantity of earth; others again recommend a mixture of eight bushels of coarse bone dust and eight bushels of coal ashes, as a sufficient dressing for an acre of land. The ashes should be kept dry, and when mixed with the bones, the mass ferments, and evolves a considerable degree of heat, when they are fit for use.

It has been stated, as the comparative result of some experiments. that bone dust acts in the cultivation of grain, as compared to the best stable manure, in the following proportions, namely:

In respect to the quality of the corn, as	7 to 5
In respect to the quantity, as	5 to 4
In respect to the durability of its effects upon the soil, as	3 to 2

—*Rep. of Inver.*

The Doncaster Agricultural Association are considered paramount authority in all matters relating to bone manure—having gone extensively into the use of it, and made it the subject of nice experiments and observation. The following is a summary of the rules which they have laid down for its application:

> "That on dry sands, limestone, chalk, light loams, and peat, bones are a very highly valuable manure.
>
> "That they may be applied to grass with great good effect.
>
> "That on arable lands, they may be laid on fallow for turnips, or used for any of the subsequent crops.
>
> "That the best method of using them, when broad cast, is previously to mix them up in a compost with earth, dung or other manures, and to let them begin to ferment.
>
> "That if used alone, they may be either drilled with the seed, or sown broad cast.
>
> "That bones which have undergone the process of fermentation are decidedly superior (in their immediate effects) to those which have not done so.
>
> "That the quantity should be about twenty bushels of dust, or forty bushels of large, increasing the quantity if the land be impoverished: and also, according to our opinion, if the bones have been already manufactured.
>
> "That upon clays and heavy loams, it does not yet appear that bones will answer."

OVERTRADING.

It was an excellent rule of an ancient philosopher, when an enemy accused him wrongfully, wholly to disregard the slander; but if justly, quietly to amend his fault. The charge of *overtrading*, applied to the people of the United States, collectively and individually, has certainly much truth to support it, and it will be wise in us to imitate the philosopher, not to murmur at the accusation, but diligently to endeavor to mend our ways. To *live within our income*, though a trite, is unquestionably a safe and prudent maxim. If a farmer sells one thousand dollars worth of produce in a year from his farm, and buys sixteen hundred dollars worth of goods and nick-nacks, he is certainly *going down hill*, and he may expect, in the words of the Prompter, that *every one will give him a kick*. But if he sells sixteen hundred dollars worth, and expends but one thousand dollars, in a year, he is in a *thriving condition*, and every one is disposed to lend him a *helping hand*—so true is it, that we are disposed to help others in proportion as they are inclined honestly to help themselves: for those only who can and do help themselves, are likely to requite the favors we render them.

If we apply these rules to the national family, we shall see that we are in a bad way; for, while we sold, or exported, during the last year, but one hundred millions from the national farm, we bought, or imported. one hundred and sixty millions of foreign goods or products—thus running in debt sixty millions in a single year. It requires no great foresight to see, that this sort of over-trading will ultimately prove as disastrous to the nation as it would to the individual. And common sense suggests the same remedy for the evil to the nation, that prudence would dictate to the individual, viz. *buy less, and raise and sell more.* The prudent farmer would forego foreign superfluities, live more upon the products of the farm, set his idle boys to work, and by prudent industry and good management, would not only soon be out of debt, but would be able to keep so—he would soon be independent, in the broad sense of the term. If individuals adopt this course, it will become the governing policy of the nation, for the national family is but an aggregation of these individuals.

If those, therefore, who lament the embarrassment of the times, would earnestly go to work to improve them, by imitating the example of the prudent farmer—in buying less, and earning more by their productive labor, the times would soon mend, and individual and national prosperity and independence would be established. Every man who buys, upon credit, what he really does not want, or what he has not a moral certainty of being able to pay for at the time stipulated, is chargeable with overtrading.

The fertilizing properties of wool have long been appreciated, though with us little regarded, from the circumstance that it is difficult to collect any considerable quantity. Yet woollen rags might be collected in almost as great quantities as those of linen and cotton, and are probably worth nearly as much to the farmer, as the latter are to the paper maker; and the sweepings of our woollen factories and tailor's shops, would add greatly to the amount. We have heretofore given a remarkable proof of the fertilizing effects of the sweepings of a woollen factory, in the case of Mr. Hubbard, of Middletown, Conn. who cut fifteen tons of hay, at a single clip, from three acres of land originally poor, but which had been made rich by the sweepings of his mill alone. We have also given evidence of their great usefulness in Watervliet. Chaptal enumerates several instances of uncommon fertility produced by like sweepings, and even by the water in which the wool of a manufactory was washed, and states, that the Genoese collect with care all they can find of shreds and rags of woollen fabrics, to place at the foot of their olive trees. In Great Britain they are used in hop grounds, and are also ploughed under for grain crops, and as top-dressings for clover. They possess a remarkable power of preventing the effects of drought. They sell in Europe from thirty-one to forty-four dollars per ton, and are applied at the rate of six to eight hundred pounds to the acre. In our cities large quantities might be collected by the indigent, and turned to good account; and it would be well for farmers adjacent to towns and factories to encourage this branch of economy. They are most serviceable upon light sands and gravels.

IMPORTS OF FOREIGN GRAIN.

The imports of foreign grain into the United States in 1835—1836, and three and a half months of the current year, were as follows:—

In 1835,	18,200	bushels.
1836,	193,700	
To April 19, 1837,	854,000	
Total in twenty-seven and a half months,	1,365,900	
Of this quantity, there came from England,	532,000	bushels.
From the German states,	403,700	
Holland,	159,000	

Italy, ...	153,300
France, ...	12,500
Russia	39,600

And the residue came from Prussia, Sicily, Denmark, &c.

MIXED HUSBANDRY.

We say of lawyers, that any dunce may win a good cause; but that the meed of praise is due to him only who manages well and wins a bad one. We may say the same of a farmer: little credit is due to him, as a good manager, who upon the exhausting principle, obtains great crops from a good soil—his land continually deteriorating. But the farmer who, upon a bad soil gets good crops, and continues to improve his land, by draining, manuring and alternating his crops, is entitled to our highest commendation.

The great evil to be apprehended in our wheat districts is, that by neglecting the wholesome precautions of the prudent farmer, the lands will gradually, though perhaps imperceptibly, become, as they have in many of the old districts, *too poor to bear wheat.* We will suggest another precaution to those—and there are many of them—who place nearly their whole dependence upon wheat, to the neglect of other crops, and of cattle. The experience of the two last years admonishes us, that the wheat crop is liable to suffer serious diminution from the Hessian fly, from hard winters, from the grain worm, and from rust or blight; that this diminution often amounts to twenty, fifty and seventy-five per cent. Under this view of the subject, would it not be prudent—merely on a calculation of *immediate* profit—throwing out of view the *certain* advantage which would accrue to the land—would it not be prudent to introduce a more mixed husbandry, and to depend more upon farm stock? The rage for sheep and wheat husbandry, have so seriously diminished our stock of neat cattle, that meat and the products of the dairy have become scarce, and command, in market, nearly double their former prices. The same remark will in a measure apply to horses. Live stock is less hazardous than grain crops; it requires less outlay of capital and labor; and the former enrich, while the latter exhaust, the fertility of the soil. Roots, again, alternate remarkably well with grain and grass, afford the best and most abundant food for stock, and add greatly to the amount of manure.

The French farmers placed their great reliance upon wheat; the supply consequently became great, the market glutted, and prices nominal. This state of things gave an impetus to the culture of the sugar beet, as a substitute for the wheat crop, and the change has been found highly beneficial. It furnishes the nation annually with eighty to one hundred millions pounds of sugar, which they before had to buy of foreigners, enables them to increase and to fatten well larger stocks of cattle, and serves greatly to augment the fertility of their soil. In many districts of the German states, wheat no longer yields its accustomed product, and rye, spelts and roots have become profitable substitutes. In our own neighborhood, in the valleys of the Hudson and Mohawk, the grain worm has blighted the hopes of the farmer from the wheat crop, and cattle and sheep husbandry, and root culture, are annually increasing in extent, we have no doubt to the ultimate advantage of the farmer, and of the state at large. A change of this kind calls into action the latent talent, and the increased industry and good management, of many a man—and induces them to inquire, to think, and to improve—who would have gone on listlessly in the old way without ever dreaming, or believing, that there ever was or could be, any better mode of farming, than the exhausting, miserable system of their grand-fathers. And when improvement is once begun, and a man finds there is more which can be profitably learnt, it seldom retrogades.

These considerations induce us to put it seriously to such of our readers, as are confining themselves to a single branch of husdandry, be it cattle, or sheep, or wheat, whether they are not likely to improve their condition by adopting a mixed system, comprising cattle, grain, grass and roots—which to us, seem admirably adapted to benefit and greatly improve each other.

BLIGHT IN PEAR TREES.

Several competitors have already appeared for the five hundred dollars Philadelphia premium, for a preventive in the blight in the pear tree Two of the communications have appeared in the Farmer's Cabinet; one from H. N. Watkins, of Prince Edward, Va. and the other from T. Emory, of Poplar Grove, Md.

Mr. Watkins, ascribes the blight to plethory, or too great a flow of sap, caused by pruning and ploughing; and the preventive he suggests, the utility of which he considers he has fully verified, is neither to prune, nor plough among the trees, after they have become well established in growth. He recommends that manure, if the land is poor, and the trees require it, be applied to the surface; and thinks ashes constitute a good dressing.

Mr. Emory is of opinion, "that the cause of *blight* and destruction in the pear and apple tree, is almost always what the French term *coup de soleil,* (stroke of the sun;") and to avoid the stroke of the sun, he recommends that the trees be planted in a moist, but not wet soil, so as to be sheltered on the southwest by "tall, dense forest trees, or a *house* or *hill.*"

We notice these communications, not because we think that either assigns the true cause of the blight, or recommends an efficient remedy or preventive; but rather to point out their fallacy.

The blight is not confined to the apple and pear, but extends to many species of the natural order of Pomaceæ, as the quince, service, &c. and appears and disappears at intervals of some years; and hence we infer, that it is not caused by a stroke of the sun, nor an abundant flow of sap. These causes are continually operating, and if they produce blight in one season, they would produce it any season, and these trees would long since have been extinct among us. Both of these theories are contradicted by the well known laws of vegetable physiology. But we are not left to conjecture upon this subject. It has been satisfactorily shown, that the blight is owing to an insect, which is described and figured in the memoirs of the Massachusetts agricultural society. The first appearance of the blight, that we have noticed on record, was in 1780. We hear nothing further of it till about 1802, when we witnessed its effects during that and four or five subsequent years. It appeared in our grounds again in 1824 to 1828—since which it has scarcely been noticed, though it may have appeared in other sections of the country. During its last visitation, we lost, perhaps, a hundred pear trees, some apple trees, and most of our quince bushes. Of the pears, some grew in dry, and some in moist ground; some in ploughed, some in grass ground, and some in lanes where the ground was hard trod. The blight affected all alike. The only remedy that we thought beneficial, was promptly to cut off and burn all the diseased branches, taking care to cut below the discoloured bark and cambium.

IMPROVED METHOD OF MAKING CLOVER HAY.

We have in the Transactions of the Highland society two prize essays, for which the society awarded ten sovereigns (=$44.40) and a silver medal, for improved modes of making clover hay. The old method of making this hay in Scotland is liable to more objections there than with us, as the Scotch climate is far more humid, and less warm, than ours. These objections, to use the language of one of these essays, "are, first, that of allowing the grass to be 'too ripe,' as it is generally called, before it is cut. Second, allowing the grass to be on the ground till it be either rotted with bad weather, drenched with rain, or dried up by too long exposure to the sun." The principle of the improved mode consists in wilting, or partially drying the hay with great despatch, so as to get rid of the redundant sap, either by spreading or forming it, immediately after it is cut, into small conical handfulls around the foot, leaving the centre open, thereby exposing nearly all the surface of the grass to the air. When sufficiently wilted, so that the stalks have lost their succulency, the spread hay, or small handfuls, are put into cock, where the hay undergoes a partial fermentation, and the curing process is perfected. The fermentation is considered essential, either in cock or stack, *in order to convert the juices of the herbage into a saccharine state,* as in the process of malting, which is found to be both more palatable, and also more nutritious, for all animals fed upon it.

These principles of making hay are similar to those which we have frequently recommended to the consideration of the readers of the Cultivator; though the process of curing it is different, being unnecessarily tedious and expenive for our comparatively dry and warm climate. With us clover, cut in a succulent state, will wilt sufficiently in the swath, especially if once turned, to be fit to be put into cock in a few hours; and if the cocks are properly made, it will cure there, and be safe from the injurious effects of rain. The advantages of a partial fermentation in the cock, which transforms the juices into sugar, and thereby increases the nutritive properties of the hay, are new to us, though we confess they appear to be based upon philosophical principles. "I am of opinion," says Mr. Proudfoot, author of the first premium essay, "that the less turning clover hay gets, the better, as the oftener it is turned its value is deteriorated, more especially after getting rain." "The *end* sought in making hay," says the editor ot the Farmers' Register, "is the same every where—and that is, to evaporate the mere water, and preserve the rich portion of the juices of the grass—and for these purposes it is desirable to have as much exposure of the curing grass to the air as possible, and as little exposure as possible to sun and wet."

EXPERIMENT IN FEEDING CATTLE.

The Edinburgh Quarterly Journal of Agriculture contains the details of an interesting experiment in feeding cattle, by Robert Stephenson. The experiment was undertaken with a view of ascertaining the relative profit of fattening cattle upon turnips alone, and of fattening them with turnips and other more expensive food, as grain and oil cake. For this purpose eighteen oxen were selected, over two years old; their live weights were ascertained at the beginning, during different periods, and at the end of the experiment, which continued 119 days. They were divided into three lots of six beasts each, and a correct account was kept of the weight of food consumed by each lot. Lot 1st were allowed linseed cake, bruised beans and bruised oats, in addition to turnips, and during the last twenty-four days of the experiment twenty pounds of potatoes were given per day to each; lot 2d received the same allowance except the linseed cake, and half the potatoes; and the 3d lot were fed upon turnips alone. The cost of the keep of each animal, during the 119 days, was as follows:

Total cost of feeding one beast of lot 1,.........	£5 2 7
do do do of lot 2,.........	3 17 0
do do do of lot 3,.........	1 18 7½

The improvements in live weight were as follows:

First lot increased in weight,...............	108 stone.
Second do do	101 "
Third do do	49 "

Abstracting the cost of feeding from the value of the increased weight, the loss and profit would stand as below:

Loss on feeding lot 1st,.......................	£3 15 8¾
Profit on feeding lot 2d, ...	1 19 3½
Profit on feeding lot 3d, ...	2 11 1

" Thus, when turnips alone were used, a profit of twenty-two per cent was realized; when corn was used along with the turnips, the profit was diminished to eight and a half per cent; but when still more expensive food was used, that is, corn and linseed cake, along with turnips and potatoes, a loss was sustained of no less than 12 3-16 per cent."

Lot 1st were the largest oxen. They were fed each with one hundred and thirty-two pounds per day of Swedish turnips; lot 2d were fed each with one hundred and twenty pounds of the same per day; and lot 3d, being the smallest, received but one hundred and fifteen pounds per day, and for twenty-four days but ninety-two pounds.

Lot 1st cost 4.884 pence for every pound of increased live weight.

Lot 2d cost 3.92 pence for every pound of increased live weight.

Lot 3d cost 3.39 pence for every pound of increased live weight.

The turnips were es'imated at four pence per hundred weight; the potatoes one shilling and six pence per hundred weight; corn at three shillings and six pence per bushel, and linseed cake at three-fourths of a penny per pound.

" In conclusion," says Mr. Stevenson, " on this part of the subject we give it as our opinion, that whoever feeds cattle on *turnips alone*, will have no reason, on the score of profit, to regret their not having employed more expensive auxiliaries to hasten the fattening process."

ON THE BEST TIME FOR CUTTING HAY.

We have seen several well written articles on the subject of making hay, some advocating early, and others late mowing, but in general without any discrimation in regard to the grasses which constitute the meadow Now there is no sort of question that some grasses are most profitably made into hay when cut in blossom; and it is equally true that there are other kinds which cannot be cut in blossom without a loss in both weight and nutritive properties—so there is no rule that is applicable to all kinds. The loss, in the intrinsic value of the hay, in cutting at the wrong time, is often great, sometimes one-half.

The duke of Bedford went to great expense, in managing a course of experiments to ascertain the relative value of grasses, on different soils, and the best time of converting them into hay. These experiments were managed by Mr. Sinclair; and a table giving the summary results has been published in several agricultural works, and may be found, substantially, in the Cultivator, Vol. III. p 63. With a view of bringing the subject to the recollection of our readers, *so far as regards the best time of cutting the several grasses*, we subjoin an extract from Sinclair's table, exhibiting the proportionate value which each grass bears at the time of flowering to that which it bears at the time of seeding, barely remarking, that the exhausting effects of any crop upon the soil are greatest when it is maturing its seed. We confine the abstract to those grasses which most abound in our meadows.

Botanic and English names.	*Value.* *In flower.*	*In seed.*	*When best cut for hay.*
Trifolium pratense—red clover, .	"	"	In flower, July 18.
Phleum pratense—timothy, ...	10	23	seed, July 30.
Poa pratensis—smooth stalked meadow grass,...............	"	"	flower, July 14.
Anthoxanthum odoratum—sweet scented vernal grass,.........	4	13	seed, June 21.
Poa trivialis—roughish meadow grass, ...	8	11	seed, July 10.
Agrostis vulgaris—fine bent grass —red top, ...	15	9	flower, Aug. 20.
Agrostis stricta—upright bent grass,	8	5	flower, July 28.
Dactylis glomerata—orchard grass, —rough cock's foot,..........	5	7	seed, July 14.
Avenia elatior—tall oat grass,....	"	"	seed, July 28.
Festuca rubra—purple fescue grass,	6	8	seed, July 19.
Holcus lanatus—meadow soft grass,	12	11	flower, July 14.
Festuca elatior—tall fescue grass,	20	12	flower, June 28.
Festuca duriuscula—hard fescue,	14	6	flower, July 1.
Alopecurus pratensis—meadow foxtail, ...	9	6	flower, May 30.

Note—The time indicated for cutting is adapted to the climate of England. The seeding and flowering will be earlier or later with us according to latitute.

Apply these facts to our practice. Our principal hay grasses are, clover, timothy, smoothstalked meadow grass, orchard and oat grass, and red top. Now it appears from Sinclair's experiments, that clover, smooth-stalked meadow grass, roughish meadow grass, orchard grass, purple fescue, and meadow soft grass, are in the best condition for cutting about the same time, to wit, between the 10th and 18th July; that the timothy and tall meadow oat are best cut about the 28th and 30th July—and that the red top is in the best condition the 20th August. The latter generally grows in moist lands, and is the last hay grass that should be cut. The sweet scented vernal grass gives but a small burthen, and is generally sown for early pasture. The tall fescue is an excellent meadow grass, is fit to cut in June, gives a great burthen, but is scarce in our meadows. The most common mixture is clover and timothy, which are at maturity twelve days from each other. It is presumed the northern, or tall growing clover is here meant, as the small southern clover comes into flower early in July. In this case it becomes a matter of convenience with the farmer, or of calculation, at what time between the 18th and 28th July, he will cut this mixed crop of grass—if of calculation, he has to determine, according as one or the other preponderates, whether the clover will lose more by standing than the timothy will gain, and whether the latter math, from the early cutting, will compensate for lightness of the hay crop.

THE CROPS.

While we rejoice in the abundance of the summer crops generally, we are sorry to find, in the Genesee Farmer, a confirmation of our apprehensions in regard to the injury to the wheat crop in western New-York, occasioned by rust, &c., and that considerable damage was done to the summer crops in that section of the state, by the frost of the 5th August.

The Genesee Farmer of the 2d ult., says, " in places liable to early visits of frosts, as in the whole section south of the ridge dividing the waters of the lakes from those that flow southerly, and in many places to the north of this ridge, vegetation, it is ascertained, has suffered greatly. On the low lands, garden vines, buckwheat, and in many instances potatoes and corn, have perished—so far lessening the means of subsistence on which many have depended."

James Canning Fuller, who had made a tour in the west, from Skaneateles to Lockport, confirms, in a communication in that paper, the preceding statement. " The effects of the frost were not perceptible," says he, " until I got beyond the influence of the lake, which was about three miles distant." Corn, potatoes, " and especially buckwheat, in many places are much affected—the corn in some places nearly destroyed." And of the wheat he remarks: " From this village, (Skaneateles) to Lockport, it is my opinion the wheat crop does not exceed ten bushels the acre."

A letter from Otisco to the editor of the Genesee Farmer, says—" It it enough to sicken one to witness the change which a single week or fortnight caused in the wheat crop. Some pieces are destroyed totally, some injured slightly, and others not at all. Still the effect in lessening the sum total must be very great."

ON CUTTING CORN EARLY.

" The beautiful researches of M Biot afford interesting explanations of several agricultural practices hitherto not well understood, at least in a scientific point of view. For example, when the base of the stem begins to become yellow and dry, if the corn be then cut down, though the grain is not ripe, it will continue to be nourished at the expense of the green matter in the upper part of the stem, almost, if not quite as well, as if it had remained uncut, and will thus ripen well; while having been thus cut down early, much loss from shaking is prevented, besides the chance of loss by *lodging* from heavy rain and wind. M. Biot's experiments, from his well-known high character for rigid acuracy, are therefore well calculated to give farmers confidence in cutting down their corn, as soon as the lower leaves and the lower part of the stems are yellow and dry, though the upper parts may be green."

The term corn, in the above extract, applies to small grain; but how much stronger does the principle apply to Indian corn. If the almost dry straw of wheat imparts nourishment to the grain, after it is separated from the root, how much greater benefit must Indian corn receive from its succulent stock and leaves, abounding in elaborated food, after it has been severed from its roots.

OLDEN TIMES—1795.

We renew our notices of the first volume of agricultural memoirs, and begin with

OBSERVATIONS ON MANURES,

by E. L'Hommedieu, a gentleman of much practical knowledge in husbandry, and of a strong mind.

" In many parts of the country which have been long improved and exhausted," says Mr. L. " or made poor by cropping, there appears to be as great an emulation among farmers, in procuring manure, as we observe among farmers in a new country in clearing their lands. He that pays the greatest attention to manure in the former case, as he that subdues or clears the most land in the latter, is called the best farmer: but the greatest difficulty is to procure a sufficient quantity of manure for the annual consumption necessary for the improvement of our old worn-out farms.—The manure made by the stock of cattle on such farms is very inadequate to their necessities; therefore it is of great importance that we resort to new resources for manuring our poor lands."

It should be borne in mind, that at the time Mr L. wrote, alternating crops, root husbandry, and clover culture, which serve now as important means of preserving, and of augmenting fertility, were in a measure unknown in our practice. Mr. L. proceeds to notice various manures, viz:

Fish.—The quantity of menhaden, or mosbankers, taken upon the coast of Suffolk, and applied to the manuring of land, will astonish those who are not conversant with the facts. Immense seines are made use of—the fish are drawn to the shore, and carts are backed into the water and loaded with scoop nets. Mr. L'Hommedieu says—" This year I saw 250,000 taken at one draught, which must have been more than 100 tons; one seine near me caught more than one million last season, which season lasts about one month." The price is stated at $1.25 per thousand. The general practice was to cart them on to the field, spread them lightly, and plough them under. Their fertilizing properties were great; " between forty and fifty bushels of wheat an acre," says Mr. L. " was not an uncommon crop;" and he cites one case, where these fish were applied at the rate of 32,000 to an acre, and the ground sown with rye. *Fortunately* a neighbor's sheep broke into the enclosure, when the rye was nine inches high, and again when it had grown six inches anew, and ate the crop off, both times, to the ground; and yet the product was at the rate of 128 bushels the acre. If it had not been eaten off, it was believed the grain would have lodged early, and been lost. Mr. L. estimates the net profit of such an acre of rye at $85.

Sink Manure.—A practice is mentioned of digging a pit in the rear of kitchens, of 15 to 17 feet in diameter and 3 feet deep, filling it with turf or dirt from the street, and conducting into it, from the sink in the kitchen, all the dirty and dish-water, soap-suds, and adding thereto ashes, lime, chamber-lye, and other filth of the house. All this was taken out and carted to the field in autumn, and fresh dirt put in. In this way, " some farmers make twenty tons of manure in a year."

Nitrous earth.—The practice prevailed of collecting the earth under barns and stables, which is known to become strongly impregnated with salt-petre, and applying it advantageously to land. We once improved, in garden culture, the ground from which an old barn had just been removed. The onions, cabbages, &c. not only grew very large, but were earlier at maturity than we have ever at any other time had them.

Peat earth —The best mode of applying this, says Mr. L. is to draw it upon the upland, burn it, and spread the ashes. A better mode of using this earth is to make it into a compost with unfermented stable dung, in the proportion of one part of the latter to three of the former, in alternate layers—or with lime—or cart it to the cattle yard, and as soon as partial fermentation has begun, apply it to the land.

" Ground well tilled, will not take half the manure for a crop," Mr. L. justly observes, " as ground of the same quality prepared in the usual way;" and he might have added, is not half so liable to suffer by drought. And he adds, " the faster your harrow goes over the ground, the better; a quick stroke against the clogs breaks them much easier than a slow motion. Hence harrowing with horses is much better than harrowing with oxen, because they move quicker: with a light harrow, the horses may go on a trot, which will break the clods much finer than when they go on a walk." Much too depends upon the harrow; the angular harrow, made by Mr. Craig, *is* light; it pulverizes the soil thoroughly, and withal performs the work more expeditiously than the common kind.

Again, in regard to good tillage, Mr. L. remarks, " The finer the parts of the earth are made, the better; this we constantly experience in our gardens, and the same advantage would take place in our fields. The dews absorbed by the earth, when made fine or pulverized, and the nitre which adheres to it, add greatly to vegetation." " An experiment has been made to ascertain the difference between dew-water and rain-water; the result was, that the sediment or settlings of the dew-water, were more in quantity, blacker and richer, than that of rain-water."

Cow-penning.—Mr. L. suggests, that when this is resorted to, and it is a good practice to enrich land, the pens should be long and narrow, for the convenience of ploughing them before the cattle are put in, that the urine and dung may more readily enter the soil, and be preserved, and not be so much wasted or impaired by the sun and winds as they would be if the ground was not ploughed—the ploughing to be repeated in one or two weeks—" then cart away all the dirt as deep as it was ploughed, on your wheat field. By this means you get ten times more profit than you can make by yarding your cattle in the cow-yard, or on unploughed ground. This ploughed ground being made mellow, absorbs the stale and dung of the cattle; it receives and retains the dews and salts of the atmosphere, and becomes good manure."

ON THE FATTENING OF HOGS.

This is another communication from Mr. L'Hommedieu, the object of which is to recommend to farmers, to soak the corn destined for their hogs, until it has become soured, instead of feeding it to them dry—Much of hard corn, fed to fattening hogs, is not digested, and a considerable portion is discharged with the dung, which does them no good. Mr. L. estimates that one-tenth of the corn fed to hogs may be saved by soaking. Estimating the number of hogs annually fattened, to equal the population of the state, leaving out the cities, or 530,000, and that each hog consumed two bushels of corn, the saving by soaking the feed would *then* have been 50,000; *now*, upon the same calculation, it would amount to about $200,000. Mr. L. thinks soaking as good as grinding, with the advantage of saving the toll, or one-tenth. If the corn is made to undergo fermentation before it is fed, the reasoning may be correct; but the modern belief is, that a saving of nearly fifty per cent is effected by *grinding* and *cooking* corn before it is fed, that the globules may be ruptured and the *dextrine*, or nutritive properties of the grain may be fully developed. Accurate experiments, made by the Rev. Mr. Colman, have shown that pigs fed with cooked Indian meal, gain twice as fast as when fed with dry corn; but on the supposition that twenty-five per cent would be saved, exclusive of the toll, the saving, upon the estimate of consumption laid down by Mr. L'Hommedieu, would amount to half a million of dollars annually, to the state of New-York, by grinding and cooking the corn feed for hogs.

Indolence the parent of vice.—It is a fact, which can not be controverted, that the want of mental and manual employment, often proves an incentive to vice, which infallibly will produce misery; and, so surely as the earth will bring forth noxious weeds, when left uncultivated, so surely will one vice beget another; which, if not eradicated, will multiply to an alarming extent, until its victims become a pest to civil society, and a disgrace to mankind.—*Bridgeman.*

A RIGHT—A REPUBLICAN SPIRIT.

" It is true that much remains to be done for the laboring class in the most favored regions; but the intelligence already spread through this class, is an earnest of a brighter day, of the most glorious revolution in history, of the elevation of the mass of men to the dignity of human beings.

" It is the great mission of this country, to forward this revolution, and never was a sublimer work committed to a nation. Our mission is to elevate society through all its conditions, to secure to every human being the means of progress, to substitute the government of equal laws for that of irresponsible individuals, to prove that, under popular institutions, the people may be carried forward, that the multitude who toil are capable of enjoying the noblest blessings of the social state. The prejudice, that labor is a degradation, one of the worst prejudices handed down from barbarous ages, is to receive here a practical refutation. The power of liberty to raise up the whole people, this is the great idea, on which our institutions rest, and which is to be wrought out in our history. Shall a nation having such a mission abjure it, and even fight against the progress which it is specially called to promote.—*Dr. Channing to Henry Clay.*

Pruning of the vine.—A correspondent in the Southern Agriculturist, has detailed in that journal, a successful mode which he has practised of training, or pruning the vine. It is to train up only the main stem, taking or pinching off all the lateral shoots, as fast as they appear, in summer, except those bearing fruit, and to pinch these off also above the fruit. In this way his vines bore early and abundantly—the fruit did not rot, but attained high maturity and delicious flavor.

Kyanizing wood for garden purposes —Mr. Loudon has noticed in his Gardeners' Magazine, a process discovered by Mr. Kyan. for preserving wood, and every kind of vegetable fibre, whether in the form of cloth or cordage. The process produces upon these materials the same effect that tanning does upon leather. The article to be thus *tanned*, whether wood, canvass, mats, lines, or other products of hemp or flax, are dipped into a liquid, prepared in a tank, and are thereby for a long time rendered indestructible by the weather.

MISCELLANEOUS NOTICES.

SUGAR BEET.

Robert Tripp, of Decatur, inquires of us,

1. *If the Sugar Beet is cultivated in the United States?*—It is, in various parts, particularly about Philadelphia and Northampton, Mass. The manufacture is expected to commence this fall.

2. *If it can be made profitable?*—Well managed, it certainly can; but experience can alone teach us good management, and of this, we have as yet but a small stock.

3. *Can it be conducted by individual enterprise, or does it require associate capital?*—The beet culture may be managed by individuals, and, with adequate capital and intelligence, so may the manufacture; but as the profit of the culture depends essentially upon a ready market for the roots, or the means of promptly manufacturing them into sugar, the culture and preparations for manufacture ought to be simultaneous.

4. *Can a knowledge of the manufacturing process be obtained with-*

out visiting a sugary personally?—A *sufficient* knowledge, we think, cannot; and indeed we should advise no one to embark largely in it, without the assistance of a manager who has a practical knowledge of the business.

5. *Is the soil of the western prairies adapted to the beet culture?*—If it will grow wheat and corn, it will grow the beet. The rich prairies are undoubtedly well adapted to the beet culture, and the country, being very remote from the sea-board, is well adapted to the profitable manufacture of sugar.

6. *Can seeds and machinery be obtained in this country?*—Seeds may be had in all our large towns, at the seed shops. We do not know that machinery for the manufacture of sugar is made in the country, but it probably will be in the course of the coming year. Inquire of the Philadelphia Sugar Beet Company.

Upon the subject of beet sugar, we have a communication from Solon Robinson, post-master at Lake Court-House, Ia. He invites the formation of a company, to carry on the beet and sugar business, on an arm of the Grand Prairie, known as Robinson's prairie, lying on the north-western section of Indiana, and near to the south end of Lake Michigan. It is described as a *dry* prairie, being thickly covered with fine grass, twelve inches high, and abounding in medicinal plants, as colombo, valerian, seneca snake root, gentian, ginsang, sarsaparilla, blood-root, &c. the soil a rich sandy loam, proved to be favorable to the beet. The proposition is to buy a large tract of land, at the government price of $1.25 the acre, and to establish the beet sugar business on a large scale.

Lincolnshire Sheep.—Jaqueline P. Taylor asks us a great many questions in relation to Lincolnshire sheep. We refer him to Mr. Cliff, of Carmel, Putnam county, N. Y. who is the only person that we know of, that can give the requisite information. We have sent the inquiries to him.

MIXED CROPS—RUTA BAGA.

Sidney Weller, of Brinckleyville, N. C. raises mixed crops of common *potatoes* and *pumpkins*, and gets good returns from both. He plants potatoes in hills, three feet apart, and puts the pumpkin seeds into every fourth hill. We have practised this mode of raising pumpkins, and think well of it. Mr. Weller states to us, that he mixes successfully, *rye* and *buckwheat*. He sows the seeds together about the last of July, cuts the buckwheat the last of October, pastures the rye in winter, and cuts a good crop the following summer. "To get a good crop of ruta baga, say 600 bushels, we must plant," says Mr. W. "by the middle of July, three feet apart, and thin the plants to one foot in the drills." We are agreeably disappointed to find that the ruta baga will give 600 bushels the acre in North Carolina.

Spelt Wheat.—Jacob A. Snyder, P. M. Rosendal, Ulster, wishes to know where he can obtain the seed of this grain, at what price, and at what time it should be sown? Will Mr. Speyerer, or some other Pennsylvania patron, answer these questions?

The Mulberry.—C. R. Hoovey, of Root, has addressed to us eighteen queries in relation to the culture of the mulberry. As it would be discourteous to our twenty thousand readers, to repeat in the Cultivator what we have not long ago published, we must refer Mr. Hoovey to numbers 1 and 2 of vol. iii. for answers to his queries.

THE GRAIN WORM AND HESSIAN FLY.

John Hacke, of Reading, Pa. writes us that he has an *infallible* mode of destroying the *Hessian fly*; and Solomon W. Jewett, of Weybridge, Vt. seems equally confident, that he has discovered an efficient mode of preserving our wheat crops from the *Grain Worm*. So far as we can judge, the gentlemen are both highly respectable and intelligent. Were we in the place of either, we should feel grateful to Providence, for the opportunity now afforded, of rendering an important benefit to society, and of becoming truly a public benefactor, by publishing the important secret to the world; and should either be induced to adopt our suggestion, we shall be proud to make the Cultivator the medium of their communication.

PLUMS.

The plums sent us by Mr. Tomlinson, of Schenectady, as the Orleans, are believed to be the *new* Orleans, and are known also under the synonymes of *early, new early, Grimwood's early, messieur hatlif*, &c. &c. They are rated as second both in quality and size, though they are beautiful fruit. The wood is liable to be somewhat injured by hard winters.

The plum sent to us from the garden of Mr. Lawrence, of Hudson, appears to be identical with a seedling we have in bearing, which originated with D. Benton, of Catskill, and which came to us under the name of the *yellow gage*. The fruit resembles in size and shape the green gage, and also in flavor, though the color is a faint yellow. This is a first rate plum, and the wood of those we have seem to possess the hardiness of the wild plum of the woods. We beg leave to distinguish it by the name of the *new* yellow gage.

The Franklin Farmer, is the title of an agricultural journal which has been just commenced at Frankfort, Ky. by F D. Pettit. It is a quarto publication of eight pages, and is published weekly at $2 per annum, payable in advance. We are sincerely gratified to see these useful periodicals multiplied among us. Their increase and liberal support is a good evidence of a growing good taste among the farming interest, and the best pledge of increasing and substantial improvement in our agricultural condition. We see by this publication, that Kentucky is likely to take the lead in raising blood horses, if not in raising fine neat cattle. The annual exhibition of blooded stock took place at Lexington early in September. Many fine cattle were exhibited, and seventy premiums distributed. The Madison association stock fair was held about the same time, at which forty premiums were awarded. The stock was much eulogized. The Central association were to award fifty premiums, principally for stock; and notice is given of five other agricultural fairs, to be held in so many counties of that state, in September and October.

NEW CHEESE PRESS.

We have received, from Jonas Tower, of Madison, Ohio, a *Cast Iron Cheese Press*, occupying a space of about two feet square, and standing three feet high, which *appears* to us (for we have not the opportunity of *trying* it in the cheese business,) the most perfect cheese press we have ever seen. It is on the principle of continuous pressure, and the power may be increased or diminished at pleasure by a youth of twelve years old. Its advantages are,

1. It occupies but little space;
2. The pressure may be graduated at pleasure;
3. It can hardly get out of order, and will not require repairs.

As to price, we are not yet instructed.

Any neighboring cheese maker will be at liberty to use it during the remainder of the season, by calling on the conductor of the Cultivator.

THE HOVEN IN CATTLE.

G. W. Forman, of Fleming county, Ky. sends us the following directions for curing this dangerous ill:—"Give to the animal affected a few ears of old corn, or a lick of salt;—if so bad that it cannot eat the corn, or lick the salt, apply the salt to the nose, and they will then lick it. It will do no harm if it does no good. But an ounce of preventive is better than a pound of cure. *I never turn my cattle on a clover field with an empty stomach*, and when on I keep them on, salt them well, two or three times a week, and I have never lost one yet." The *preventive* is judicious. As to the efficacy of salt, we are inclined to give it credit: our cattle have daily access to salt, and since this has been the case, we have not had a hoven animal, though our clover is often luxuriant. Salt, given daily, is a preventive of many diseases.

For the cholic in horses, Mr. Forman gives half a pint of spirits of turpentine, mixed with a like quantity of melted lard or castor oil, in a drench; and if the case is very bad, the proportion of turpentine is increased. He has used it successfully in several cases. ☞ Mr. F.'s request in regard to steers shall be attended to.

The Berkshire Cattle Show will be held on the 4th and 5th of October, at Pittsfield; the Fair of the New-York Institute on the 16th, at Niblo's Garden, in Broadway. We would be happy to notice other like meetings were we enabled to do it correctly.

SMUT.

We have a thousand evidences on record, that if seed wheat is steeped twelve hours in a strong brine, and then mixed with fresh, caustic, powdered lime, before it is sown—*the crop will not be smutty*.

LIME-STONE AS A MANURE.

H. Nazro, of Troy, asks us what are the effects upon the soil of crushed or ground unburnt limestone, and whether it is difficult to reduce it to powder? We answer, that it *is* beneficial upon soils deficient in carbonate of lime—that it opens clays and renders sands more compact, and is highly beneficial in increasing the good effects of manures which are applied to the soil. It effects a mechanical improvement upon all these soils. The great difficulty consists in pulverizing it, as none but the softer qualities can be well reduced to powder.

CORRESPONDENCE.

Lake C H Ia August 29, 1837.

J. BUEL, Esq.—DEAR SIR—I conceive it to be a duty that each patron of the Cultivator owes, as much as payment for the amount of his subscription, to communicate to you all such facts as he may deem important or beneficial to his agricultural brethren, that therefrom you may *select* such items as have not been, or that you may deem useful to publish. With this view I send you the following scraps:

DISEASES OF HORSES.

Thistelow and Poll Evil, both of which I have known effectually cured, after breaking, by crowding a lump of pearlash or salæratus into the sore. If the first application is not effectual, repeat it. The patient should be thoroughly physicked at the same time.

DYSENTERY, BLOODY FLUX, CHOLERA MORBUS, ETC.

If there is an "infallible remedy" in the world for any complaint the human system is subject to, there is one for these complaints in a very strong tea made of the bark of the Sweet Gum, the scientific name of which is "Liquid Amber." It grows a large tree, is a native of southern latitudes, grows very abundantly on the high table lands of Ohio and Indiana, has a leaf like maple, and a ball somewhat like "Button Ball," or Sycamore, exuding a very aromatic white gum. I *know* the medicine to be almost invaluable.

BOILING RICE.

I venture to say not one in ten of the readers of the Cultivator, has ever heard of a receipt for so simple a piece of cookery. There is none more important. Try it. If it is an improvement, recommend it. Put three cups of rice into two cups of cold water, set it over a brisk fire, and after it commences boiling, let it stand *eight minutes only*—'tis then ready for the table. Instead of being a mass of unwholesome salve, it will have completely absorbed the water, leaving the grains separate, soft and excellent.

LONG MANURE.

I have tried the experiment this season on my garden, with most convincing success. Having a very retentive subsoil, I tried the plan of burying coarse dry straw under my beds of beets, carrots, parsnips, peas, beans, vines, and almost every kind of vegetable that I planted, to serve as an underdrain as well as manure. The effect has fully convinced one sceptic. I hope others will try it. This is the first time I ever saw straw used for manuring any crop, except potatoes. I have toiled many a day to rot it, so as to make it "fit to use for the next crop." How much knowledge to be gained for 50 cents a year! As a means of extending such valuable knowledge, I ask a consideration of

A NEW PROPOSITION,

to extend the circulation of the Cultivator, or some other agricultural paper. It is this:—

Make it an invariable rule, that every agricultural premium, should include a copy of such paper, which should be given by the person receiving the premium to some one who had never taken it—always taking it for granted that no one would ever get a premium unless he was a patron of some such paper And further, let those who are able and willing, raise a fund, say $500, for gratuitous distribution of the Cultivator, among those who are either unable or unwilling to pay, but who would be willing to read. Let every friend to the proposition subscribe such amount as he will give, as soon as it is ascertained that $500 can be raised. To begin, although I am poorly able to do it, I will subscribe $5. I hope it will not stand long alone. I am respectfully yours, &c.

SOLON ROBINSON.

[*Note.*—Mr. Robinson's subscription is registered, and we shall be glad to see his proposition sustained. Should it be so, the names of the contributors to the $500 fund will be published in the Cultivator.—*Cond.*]

CHESS OR CHEAT.

In giving the following communication, we are not desirous of renewing a vexatious and unprofitable controversy, nor do we intend to become a party in the dispute—but we give it out of complaisance to a highly respectable correspondent. We are free to express our doubts, however, whether the chess discovered in the wheat ears was any thing else than shrivelled or blasted kernels of wheat, caused by rust, or other disease.

Caroline, N. Y. August 30, 1837.

DEAR SIR—Whether wheat ever turns to chess or cheat, has been, for a long time, a subject of controversy. Will the certificates I enclose you from Mr. Rounseville, and from Mr. Randall and sons, settle this long contested point? Will it be said that the two seeds being sowed together has caused this mixture of seed in the same head? If so, why do we not find a like mixture of wheat and rye in the same head, when both seeds have been sowed together on the same ground? or spring wheat and oats? If a mixture is supposable, from seeds being sown together, ought we not rather to have expected to find a grain between wheat and chess, and partaking of the nature of both? I leave you and your readers to determine this point, and conclude by assuring you that those gentlemen are intelligent men, and as much to be relied on as any in our county. Mr. Randall's sons are probably from 18 to 28 years of age.

With great respect, sir, your ob't servant,

JOSEPH SPEED.

Richford, N. Y. August 16, 1837.

I hereby certify, that I saw, some years since, in this neighborhood, a head of wheat and chess or cheat, growing together on a wheat stalk, not a chess stalk. For about an inch on the lower part of the head, was fair wheat all round the head. For about two inches above this, on the remainder of the head, on one side, grew distinct grains of chess, and on the other side, fair and distinct grains of wheat—as distinct and evident as are grains of wheat and chess growing on different stalks.

JOHN ROUNSEVILLE.

Caroline, N. Y. August 16, 1837.

We hereby certify, that we saw, at this place, last harvest, we believe as many as twenty heads of wheat, about one-third of the lower part of each head was round, containing wheat, and the remaining upper parts of the heads were flat, containing chess or cheat. Respecting this, there can be no mistake, as we examined the heads carefully, and the difference between the grains of wheat and chess was plain and evident to all of us. The *straw* was wheat straw, and not at all resembling chess straw.

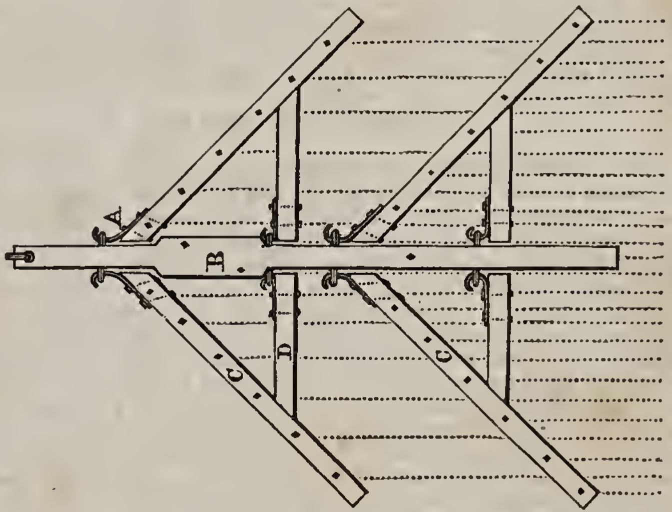
VALENTINE RANDALL,
MERRILL H. RANDALL,
JOB S. RANDALL,
CHAUNCEY RANDALL,
LEROY D. RANDALL.

IMPROVED HARROWS.

Pittsford, Monre co. Aug. 10*th*, 1837.

MR. BUEL—DEAR SIR—I herewith send you the drawing of a harrow which I have lately completed, and for which I am procuring a patent.—If you shall consider the principle upon which it is constructed practicable, and an improvement that will result favorably to the agricultural interest, I shall be pleased if you will present a notice accompanied with an engraving and explanation, to the readers of your valuable paper.

Fig. 40.



EXPLANATION.

A. Hooks and eyes on each arm and brace, to permit the arms to play according to the surface of the ground. The hooks fastened to the arms and braces by screw-bolts and nuts; the eyes on the ends of iron bars running through the centre beam.

B. Centre beam, with a swell eight inches wide to receive two teeth, which are four inches apart in line, and set standing so that the points may be six inches apart; they are set catering from each other, to prevent clogging; another tooth farther down works in the centre of the two first.

CC. Arms, each having six teeth; teeth nine inches apart on beams, but working six inches apart in line, and so arranged that the teeth on the lower arms work in line in the middle of the track between the teeth on the fore arms.

D. Braces to the arms, into which they are fastened by tenons, and pinned.

The arms may be taken off from the centre beam, by taking out the bolts from the braces and swinging them forward.

The great advantage which I conceive my harrow possesses over others, even of the jointed kinds, consists in its working more perfectly the *whole* surface of the ground over which it passes. The arms swinging independent of each other, enables one to descend into a hollow, while the other on the same side of the centre beam, is elevated by a stone, a sod, or any other little eminence;—whereas, in other jointed harrows, both arms would be elevated to the height of the highest, and consequently leave some ground undisturbed, or at least, but partially harrowed. Another advantage is, that the ground is harrowed alike in the middle and on the sides of the track, which does away the necessity of lapping the harrow on the ground already harrowed. The working of the teeth of the fore and back arms leave their track three inches apart from centres, and being one inch square, and working diagonally, each tooth disturbs the ground nearly one inch and a half; leaving the tracks but one and a half inches apart.

Respectfully yours,

EDMUND WILBUR.

WIRE—CUT AND GRAIN WORM.

DEAR SIR,—I have practised fall ploughing just before winter set in, and twice have turned over swarded land in a January thaw, which I wished to redeem from worms; and, in general, had my expectations realized.

The reasons which I would assign are these: worms, in most cases, like other insects and animals, prepare in order for winter; and when removed from their torpid winter bed, to be more exposed to frost, not sufficient time allowed them to repair before the soil is congealed by freezing, they eventually perish.

In observing the progress of the grain worm for several years, we have had, in this section, two seasons in which the worms have almost in toto been destroyed by extreme dry and warm weather, at the time directly following the depositing of the nit or worm in the glume.

Respecting the security of the wheat crop from the fly and grain worm, I am flattered by the experience of the past season, that I have obtained a remedy. On different parts of a field of wheat I made an experiment, the result was no grain worms were found; at the same time in other portions of the field, where no remedy was applied, very sensible damage was noticed.

The remedy is simply grounded on principle, the expense was but a trifle.

Respectfully yours,

To J. BUEL, Esq. SOLOMON W. JEWETT.

Weybridge, Vt August 21, 1837.

DIRECTIONS FOR MAKING BUTTER.

Mr. J. BUEL,—Dear Sir,—According to promise, I send you the following directions for making butter. They are strictly in accordance with the method practised by my own family, and in which we have been successful in suiting the market for a great number of years. You are at liberty to use them as you may judge proper.

I am, dear sir, respectfully yours,

JAS. SMEALLE.

The milk of the cow is a nourishing and grateful *food* to man. Among the various uses to which it is put for this important purpose, none are more deserving of consideration than that well-known delicious substance called butter. Butter is an almost indispensable necessary of life; it is used by all classes of people; it forms an essential part of nearly every repast, and if the quality is good, there are few indeed who do not highly relish it. But it will be readily admitted, that the qualities of butter differ extremely; some are very fine, while others are unfit for the purposes of the table. Yet both the good and bad are produced from milk possessing exactly the same properties. Milk is composed of a peculiar oil, (or butter,) curd and whey, which can be easily separated. The same proportion of these ingredients may not exist in the milk of every cow, but the combination is the same in all. The following position will therefore hold good, viz: If good butter may be made from milk, and all milk possesses the same properties, then all milk (of healthy cows is intended) is susceptible of producing good butter. It is admitted that the food of which the cows partake, for the time being, will more or less affect the quality of the butter. Winter and summer make, for example, are very different, but both may be good of their kind,—difference in quality arising from this cause, therefore, will not affect the principle above laid down. It is evident that it is not to the milk, but to the management of it, that we must look for the cause of that diversity of quality existing in butter.

When milk stands at rest for some time, cream collects upon its surface, which it will continue to do if *kept in a proper state*, until very little is left in the milk; but under certain circumstances it becomes sour and coagulated, after which the cream ceases to gather. It is generally admitted that the greatest quantity of butter is obtained by churning the whole of the milk. If this course is to be pursued, churning ought to be done as soon as possible after the milk has thickened. But the general practice is to churn the cream only, in which case, means must be used to keep the milk sweet, in order that the greatest quantity possible of cream may be obtained. The milking pails, milk pans, &c. must be regularly cleansed and scalded before being used. Let this extend to the whole apparatus of the dairy.

Zink or tin milk pans should be used, they being most cooling and easily kept sweet. The milk room must be well ventilated, and as cool as possible. In very warm weather it will be of advantage to place the milk pans on the floor.

Cream is composed of the same ingredients with milk, but in different proportions. It must be skinned off as soon as it has ceased collecting, and churned as soon as possible after it has thickened. If it is permitted to stand for a length of time before churning, the component parts will separate spontaneously, and in churning numerous particles of the curd will become blended with the butter, and can never afterwards be separated. The butter will appear spotted, it will have a sour taste, and will very soon become rancid. Cream is extremely liable to become tainted by any offensive smell with which it may come in contact. Butter will frequently have a flavor of cheese, onions, &c. merely from such articles having been placed near the milk during the time of creaming, hence the necessity of keeping the milk room sweet and clean. Care must be taken not to make the churning too warm; every one conversant with the business, knows the inferiority of what is termed scalded butter; it is much more safe to churn too cold than too hot. Hot water should never be used for the purpose of warming the churning. Its coming suddenly in contact with portions of the cream causes it to curdle and produce those evils already mentioned, when separation of the parts take place. When the churning requires warming, the better way is to fill a tin pail or milk pan with the milk or cream, set it in hot water, stirring it while warming; this can be repeated until the whole is brought to the proper temperature.

We have said that the several ingredients of which milk is composed can be easily separated. Although this be the case, it requires time and labor to obtain either in a perfectly pure state. Butter, as taken from the churn, will contain a considerable portion of the other matters, and on the proper separation of these, the quality of the butter in a great measure depends. If the business has been rightly conducted, they will be in a liquid state, viz. of sour milk, and may be almost entirely removed. Many commence the operation of working the butter by washing it in cold water; the practice, although much followed, is not a good one; it injures the color, and detracts, in a considerable degree, from that delicious nutty sweetness, which fine butter possesses. This may appear novel to some, but it is not new to many of our best butter makers. Let any one try the experiment, by treating parts of the same churning, the one by washing, and the other according to the directions here given; it is easily done, and will remove every doubt.

Raise the vessel containing the new made butter a little on one side, to allow the milk to run off; commence working it with the ladle by bruising it down, turning it over, &c. pouring off the milk from time to time as it collects. Continue until the milk ceases coming off; add the proper quantity of fine salt, mixing it well with the butter, and set it in a cool place until the following day, when it must be again thoroughly worked. The salt will have dissolved in the butter, and part of the pickle will work out, taking with it nearly all that remains of the foreign matters. Continue working until the pickle comes off clear, and the butter a tough, solid mass. The excellent preservation of the butter depends much on this part of the business being properly performed. and to its mismanagement may justly be attributed a large proportion of that of inferior quality. As part of the salt will have been lost by working, the proper quantity must now be added, with about half a tea spoonful of salt petre, well pulverized, to ten pounds of butter, mixing the whole properly. Here a caution may be proper, viz. having obtained good butter, don't spoil it with salt, as is too often done. A medium is best, not so little as to make it insipid, nor so much as to destroy the flavor, and make the taste disagreeable.

In packing butter, the vessel to receive it, if made of wood, should be seasoned for at least a week previous to using it, by filling it frequently with buttermilk; it must likewise be properly cleansed and scalded. The butter should be put down as soon as the working is finished, while it is yet soft and pliable, pressing it together in such a manner as to leave no vacancies between the different churnings. If the butter is intended to be kept for a length of time, the following treatment will answer the double purpose of excluding the air, and supplying a proper pickle, which are both necessary. Cover the butter neatly with a linen or cotten cloth, over which lay a quantity of fine salt, add from half a pint to a pint of pure water, repeat either or both when necessary. Set it in a cool dry cellar. Follow the above directions and the butter will keep well, and be of excellent quality.

[NOTE.—We have seen and tasted both the cheese and butter of Mr. SMEALLE, made according to the directions, we understand, given above and in a former number of the Cultivator, and we do not hesitate to pronounce both of the first quality.—*Cond. Cult.*]

FARMING IN THE VALLEY OF THE WABASH.

La Fayette, Indiana, August 19, 1837.

JUDGE BUEL,—Dear Sir,—I have been making a few experiments in agriculture. I bought ten bushels of Black sea spring wheat, the second crop from the importation, and raised on Mr. Hand's farm, in Madison county. The seed had considerable *smut* in it, and following the directions in the Cultivator, I soaked the seed wheat in lime water,* but I find the crop to be very smutty.

The seed was sowed late on "sod ground;" by this, I mean the wild prairie in its natural state, simply turned over. The sod is then very tough, and requires a year to rot before it can be ploughed. I sowed late and in sod ground, which had not rotted, and all predicted a total failure and waste of seeds, but on the contrary, I raised *one-third more*, or about thirty-three bushels per acre, which is ten bushels per acre more than any I knew of around. Their crops were winter killed generally. Our crop was ripe before others, though planted late in spring.

The Baden corn which I see you notice in a former number, was received *very* late, and I fear will not fully ripen; but it is a wonder to all who behold it. The stalks are magnificent, large, very stout, and exceedingly tall, beyond any thing ever seen, even in this western Eden. We have fifty acres in this corn, doing well, and from five to ten ears on a stalk. If the fall is late we shall have a great crop. We followed Mr. Baden's directions, planting five feet apart; but certainly three feet apart, and three stalks in a hill, in this rich and black earth, is better than two in a hill and five feet apart in the soil of Maryland, and old states.

---

* The Cultivator directs, steep in *salt and water*, and then apply LIME.

If the smut can be kept out, spring wheat will be the only wheat raised in this county. We have about 200 bushels raised from six acres, and could sell at $5 per bushel.

Soil in this county is exceedingly fertile. I know of farms planted for nine and ten years, every year in corn, and equally as good now as ever, and manure is of no account here. In this town we pay 75 cents a load to have it hauled away!!!

Succession of crops is not thought of here, and in our immense corn fields, a hoe is never used. I do not believe 100 hoes are sold yearly in the county, and only for gardens. The ground is furrowed or listed, three feet to four feet apart, then cross furrowed, and into each corner three or four seeds dropped, and returning with the plough is covered up by the ridge. The planting is done. Twice after that at different times the plough is run through *one* way, to throw the dirt up against the stalk, and clean the weeds, and the crop is "laid by," and at harvest 45, 50, and 60 bushels of corn is confidently expected.

I earnestly hope and repeat the wish, that we may be favored with a visit from you; I am well acquainted with Indiana and Illinois, and will show you any part.

I am, sir, yours respectfully, E. A. ELLSWORTH.

PIGS *WILL* FATTEN ON APPLES.

Plymouth, Conn. September 12th, 1837.

J. Buel, Esq.—Dear Sir,—Although it is pretty well established and believed by farmers and others, that hogs can be fattened on apples, pumpkins, &c. yet many people cannot be persuaded that good, solid pork can be made without the aid of corn. For the purpose of removing, as much as possible, objections on that account, I send you, for insertion in the Cultivator, if you think proper, an extract from a letter to me, from F. J. Finn, Esq. of this county, written in answer to an inquiry I had made of him, and may be relied on. His letter to me is dated July 12th, 1837.

"As to the apple pork I say, that I shut up my pig the forepart of September. He then weighed fifty-five pounds. The precise day I shut him up I do not recollect. I kept him on apples, raw, promiscuously gathered, both sweet and sour, but mostly sour, say four weeks, till I had potatoes and pumpkins from the field, ripe, and large enough to boil. I then boiled equal quantities of apples, potatoes and pumpkins in a potash kettle, to a complete pudding, by mashing them, while boiling, with a hoe, and of this consistence I fed him twice a day, as much as he would eat. About a fortnight of the last of his feeding, I gave him, in one barrel of the above mixture, four quarts of buckwheat ground. This was his only food. On the 21st December I killed him, and sold him for $50, weighing nearly 300 pounds. I then pursued the same course with another, which I am now eating. Better pork I never had, and finer ham was never tasted."

Yours, C. BUTLER.

YANKEE HOMMINY.

As to the word "*Homminy*" and the "article" being "western," I can inform your friend, that I think he is mistaken. I was born, bred, and still reside in Yankee land, and have been well acquainted with both the name and the thing, more than sixty years, during which time no year has, and I could have wished that no week might have, passed, without my feasting on it. I am now waiting impatiently for the corn to ripen, so that I can feast on it again. I have, however, a much less "tedious" process of preparing it than that described by your friend. I send the corn to mill, and have it cracked, or rather ground as coarse as possible in the mill. This disengages the hulls, so that the cook can wash them off, and the meal by grinding, is also worked out, and used for culinary purposes. When I was a boy, and no mill was near where we resided, we used to prepare homminy in a mortar, as stated by your friend; and the old homminy mortar has descended, and still belongs to me. But prefering the less tedious process, we have little use for the mortar. As to homminy being a good substitute for rice, I should reverse that, and call rice a pretty good substitute for homminy. C. B.

CROPS IN SUFFOLK, &c.

Upper Aquebogue, N. Y. September 18th, 1837.

Mr. J. Buel,—Sir,—The opinion is gaining ground with farmers in this neighborhood, that bitter weed, of which our lands are full, has a very destructive influence on wheat when ripening. We think that a wheat field, containing a large portion of the bitter weed, has a greater tendency to blast and mildew than one where there is none. We hope that observations on the subject have been made elsewhere; if so, will you be pleased to state them, and the causes, &c.

We noticed in the September number of the Cultivator, observations on the wheat crop in various parts of the country, which on the whole are rather gloomy. May we also be permitted to give a view of the prospects of the farmers in Suffolk county, and Long-Island generally? Wheat crops average full half, with an excellent kernel; rye is good, with a full crop; oats never better, weigh thirty-five and forty pounds to the bushel; corn certainly never looked more promising, and bids fair for an abundant crop; potatoes fine and large, with great yield; and turnips, old Suffolk will be, as she always has been, foremost in producing famous crops of that most valuable vegetable.

Thus it will be seen that the cultivators of the soil can have no excuse for crying hard times, distress, &c. Yours, &c.

B. F. WELLS.

EXTRACTS.

[*From the Records of the United Agricultural Societies of Virginia.*]

GOOD FARMING IN VIRGINIA.

[The following letter was written at a time when the clover husbandry was considered altogether impracticable for the poor lands of Virginia.—*Now*, when it has been established that calcareous manures will remove that natural defect of those soils, this letter may be far more serviceable for that region than when it was written, or than its writer could then have anticipated. Ed. Far. Reg.]

Bremo, Fluvanna, 21st December, 1830.

Dear Sir—Yours of the 2d December, did not reach me until within a few days, from the circumstance of its not being sent to my usual post-office. This will excuse me for not being more prompt in my answer to you. The consciousness that you have counted too largely upon the information I am able to impart, on the various agricultural subjects referred to in your letter, and the anxious desire I feel to encourage the spirit of inquiry, which seems to be spreading itself amongst the cultivators of every section of the state, induce me, the more readily, to comply with your wishes, as well to evince my perfect willingness to contribute what I can in so good a cause, as to apprise you promptly of the necessity of your applying to other and better sources, for the desired information.

Your queries shall be taken in the order in which they are made, and without confining myself to the direct answers, shall add such general remarks as appear to me any way connected with rural economy;

1. "The process of fallowing as practised by myself." This is to plough in a crop of clover, as nearly as possible at the stage of its growth, when it is in the best state for cutting to make hay. Of course, where there is a full portion of your rotation in clover, there can be but a part of your fallows ploughed exactly in the proper time without extra teams, and unusual seasons. Hence, the necessity of beginning a little before the clover has attained the precise point, to yield the greatest advantage from being turned into the earth—and hence too, the necessity of a second ploughing, where your first was early, and the season favorable to vegetation after the process. But I deem it less important to be minute upon this head, as for reasons hereafter to be assigned, I do not think summer fallows and the clover husbandry (which I consider as inseparable,) suited to the sandy soils of the lower part of this state.

2. "The advantages as to product of a clover fallow over wheat after corn?" This may be stated to vary from nothing to a double crop, depending upon the opportuneness and perfection of the process, and the adaptation of the land to the use of plaster of paris. Soils suited to plaster, with a heavy crop of clover ploughed in, at the proper time, previously dressed with three or four pecks of gypsum to the acre, followed by favorable seasons for rotting the buried clover, and seeded in the month of October, will rarely fail to give two bushels, for one from the same land after Indian corn. On the other hand, a crop of clover (and the heavier the worse for it,) dried by our powerful sun, and consequently imperfectly buried, from the hard and unmanageable state into which the earth is brought frequently by the summer droughts, will often not yield a better crop than the same land would produce after corn.

3. "The difference in the quantum of labor in fallowing for wheat, and wheat after corn." This can only be decided by referring to the number and kind of operations which are performed in each process, and as these ought to depend, in number and kind, upon a variety of circumstances, the relative expense of the two modes of husbandry must necessarily vary in like manner. Under a fortunate concurrence of circumstances, fallows may be seeded upon the first ploughing, and completed with a single harrowing; but it often happens, that a second ploughing, and under particular circumstances a third, and two harrowings, may be necessary to do justice to the crop. In like manner, a single operation, with a single horse plough, and a slight chopping the step, frequently do more ample justice to the wheat crop after corn, than, under other circumstances, will result from cutting up your corn, breaking up with the double plough, harrowing to receive the seed, and sometimes ploughing with single ploughs before the second and last harrowing.

4. "The effects as to improvement and exhaustion." These are also much influenced by the circumstances already adverted to as affecting the production, but it may be assumed, that the land is left in much better heart after a fallow crop, than after wheat succeeding corn; when the last, however, has credit by the greater quantity of grain yielded by the two crops over the one, it exhibits too imposing a claim, upon the score of profit, to be given up, even on our clay lands. On the light sandy lands of the lower country, so much better suited to Indian corn, and less adapted to fallows, I am of the opinion, that wheat after corn, is the most profitable and judicious course of husbandry.

5. "On what soils is the practice of fallows most beneficial?" Wheat soils, or those having a considerable proportion of clay in them. This being the soil, only upon which clover can be profitably and extensively cultivated, I would recommend summer fallows only, where this description of soil was found, and the clover husbandry practised. Upon this kind of land, without clover, I should not hesitate to adopt winter fallows; in other words, the English naked fallows, stirring them with single ploughs through the summer, in preference to depending on a late summer fallow. The influence of the sun on this description of soil, recently exposed, is not as injurious as on sandy soils, and by no means equal to the evils arising from the hard and untillable state into which our summer sun bakes it.

The remarks on this head sufficiently express my opinion, as to "the profitable introduction of fallows where a reduced sandy soil and hot sun preclude clover."

6. "What is the difference of product between wheat after one ploughing on grazed land and that not grazed, or is either practised?" Both are practised, and when the vegetable matter is turned into the earth, in a favorable state for rotting, that is, with some remaining succulence, and succeeded by a suitable season to promote putrefaction, the great agents of which are moisture and heat, the more that has been turned in, the better the succeeding crop, and the less the injury sustained from its maturation. But in the two last dry summers, I have known some fields of fallowed wheat almost destroyed by the dry vegetable matter remaining undecomposed in the soil. It seems therefore, to follow, that the less vegetable matter turned into the soil, the better for the immediate crop, unless it is prepared by decomposition into the food of vegetable life.

7. As to "the period that land may remain under grass, for improvement, fallowing without causing the crop to be foul"—there is a difference of opinion among the farmers of this quarter, but I think there is a preponderence in favor of the opinion, that clover, (we cultivate no other grass,) ought to be ploughed the summer twelve months after sowing it, and of course where it is cut at all, the same year of taking off the crop.

My own practice has been to plough in clover the summer two years after sowing it, thinking it reasonable that the land would be more improved by its longer rest, and giving the whole growth of the year it is ploughed to the soil; but the result, especially for the two last years, has disappointed me. It may be objected to my practice generally, too, that the earth becomes much more firmly settled, and is brought into tilth with greater difficulty. On the other hand, it may be said, there can be but little more than the mere roots counted upon for the improvement of the soil, where the first crop is taken for hay, and the second for seed; and this, too necessarily limits you to the latest period for the performance of your ploughing for the fallow crop, thereby diminishing the chance for a timely preparation. Where clover is sown merely for the improvement of the land, and not intended to be cut at all, there is little doubt that the best time for ploughing it in, would be the summer twelve months after sowing it; but that seems to be an objectionable clover system, on more accounts than one, which affords neither hay or seed. The other practice, of cutting hay and ploughing the same year, has been practised by the best farmers on this river, and as they are more experienced, and have been more successful than myself, I cannot in justice but recommend their practice, in preference to my theory.

8. "What depth of ploughing is necessary where the soil does not exceed three or four inches?" As far as my experience has gone, the depth of ploughing should in all cases depend upon the character of the subsoil. Light soils, based on sterile sand, I would plough no deeper than the vegetable mould; but where clay is the foundation, and especially of that description which is fertilized by exposure to the atmosphere, I would bring up the largest possible proportion of it, that would leave the soil in undiminished productiveness by the mixture; nay, I should be inclined to increase the proportion to a small diminution of its immediate productiveness, for the sake of the great future amelioration. Upon all good wheat soils, the ploughing should be as deep as three horses can perform with the best constructed plough. I am sure I know of no upland soil, that would not be rendered entirely unproductive, for at least one year, by being ploughed eighteen inches or two feet; for although some of our clays become fertile, by exposure to the atmosphere, it requires the operation of at least one winter, for any sensible effect to be produced. It is, however, stated, that the celebrated Fellenburgh, whose scientific and agricultural establishment, at Hofwyl, has attracted so much attention throughout Europe, has ploughed two feet deep, with an implement requiring the power of fourteen horses. During my residence in the lower country, and in the course of my experiments on the sandy soils of that section of the state, I am satisfied that I did great and lasting injury to some land by ploughing it about six inches deep. This land was on a poor sandy foundation.

Having gotten through your queries, I will add, as succinctly as possible, my thoughts on a plan of husbandry, suited to the light sandy lands of the lower parts of the state. I should adopt a system excluding clover, because from the nature of your soil, and the generally reduced state of the land, the attempt at the field culture, upon a large scale, would be attended with no other result but the loss of your seed; and as summer fallows should only be practised as the concomitant of clover, those likewise I should consider as out of the scheme.

Assuming it as the basis of all good husbandry, that for every exhausting crop, there ought to be some counteracting improvement, I would cultivate no more land in corn than I could manure. This I think can be effected under a six-field rotation, which would reduce the quantity to be manured to one-sixth of the arable surface, and the succession of crops should be, first, corn; second, wheat; third, pasture; fourth, peas, and all leguminous crops; cotton, pumpkins and potatoes, might occupy a corner of this field; five, wheat; six, pasture.

The first, and most ostensible objection to this scheme, is the apparent small proportion of corn, not insuring a sufficiency of that necessary crop; and secondly, the difficulty of raising the required quantity of manure.—In answer, it may be said, that in the best cultivated counties of England, we are told, they manure as much as one-fourth of the arable surface yearly. It is true that some part of this manure is derived from other resources than those of the farm; to wit, their towns, manufactories and marl-pits; but the improvement derived from all these sources, I presume does not amount to the difference between one-sixth and one-quarter.—Besides, all the tide-water districts of Virginia abound in marl, so that, in this respect, you, in all probability, stand on an equal footing with the English farmers—and if all that labor, which is now bestowed on clearing land, and renewing our quick decaying fences, and other perishable improvements, which ought to be substituted by more permanent ones, were directed judiciously to the accumulation of the materials of fertility; digging marl, collecting rich earth from bottoms and swamps, those depots of nature, which are constantly, by the operation of natural causes, swallowing up the primest principles of fertility, to be added to the materials common to every farm; I am persuaded, we should find there would be less labor in collecting the means of fertilizing an acre, than in preparing it, from the forest state, and enclosing it for a crop.

An accurate statement in detail, of the relative expense of manuring an acre of land, and bringing one from the forest state into cultivation, is a desideratum as much called for in Virginia husbandry, as any that has ever occurred to my mind. If I am not much mistaken, it would prove, that less labor would be required to improve the lands throughout Virginia, than it has taken to reduce them to their present deteriorated state.

As to the objection that one-sixth part would be an insufficient portion of the arable land to have in corn, it may be replied, that that portion, manured at the rate of 20 or 25 loads, of 30 bushels each to the acre, would, on ordinary land, produce a double crop—and, therefore, would not only be equal to one-third, the proportion now usually put in corn, but would produce the clear saving of one half of the labor of cultivation, besides other almost incalculable advantages.

Upon your sandy soils, I think you might reduce the quantity of manure four or five loads to the acre, below what is necessary to produce the same result on the clay lands of the upper country, for light lands make a much better return, for a small quantity of manure, than stiff lands. I have increased the corn crop 100 per cent upon the ordinary high lands here, with 25 loads of 30 bushels each to the acre, which in their natural state would produce about two barrels. I am confident equal effects would be produced from 20 loads, upon the light soils of Prince George and Surry.

Where wheat is relied upon as the chief crop for market, as is contemplated in the foregoing scheme, the materials for manure would be very much increased—and the frequent recurrence of pasturage would be more than overbalanced by the additional comforts in living, and the profits to be derived from stock, which, with your facilities of communication with the best markets, ought to be no inconsiderable item in your annual income.

The field in peas, &c. would more than compensate for any contingent deficiency in the corn crop, leave something for market, and from the highly meliorating character of its crop, would be in a better state of preparation for wheat than any grass crop turned in, on sandy lands, that I know of. The offal of the products of this field, would contribute largely to the general fund of manure. And, until a system is devised to increase this fund to an adequate supply, for that field in the rotation which is in the most exhausting of all our crops, Indian corn, regular deterioration must be the consequence of our tillage. It is in vain to amuse ourselves with expedients; practical agriculturists will soon all agree that nothing short of a full manuring once in the rotation, will insure general and permanent improvement.

Accept the assurance of my high regard and esteem.

JOHN H COCKE.

To Edmund Ruffin, Esq.

[*From Chaptal's Chemistry applied to Agriculture.*]

OF NUTRITIVE MANURES.

The nutritive manures are those which contain juices or other substances, which, being dissolved in water, or otherwise divided to the most minute degree, are capable of being drawn into the organs of plants. All the vegetable and animal juices are of this description.

These substances are rarely employed in their natural state for the iment of plants. It is generally considered preferable to allow them to putrify or ferment; the reason of this is simple. Besides the decomposition resulting from this operation, which renders the substances more soluble in water, the gases produced by it, such as the carbonic acid, the carburetted hydrogen, azote, and ammonia, furnish food for plants, or stimulant for their organs of digestion. It is not, however, well to prolong this decomposition too far; for if it be completed, there will remain only some fixed salts, mixed with those earths and juices which have resisted its action. Besides, the effect of manures, which have been entirely decomposed, is almost momentary, lasting but for a single season; whilst those which are employed before arriving at this state, continue to exert an influence for several years. In this last case, the decomposition, retarded by the separation of the manures into small portions, continues to go on gradually in the earth, and thus furnishes vegetation with its necessary aliments for a long time.

The excrements of animals, formed by the digestion of their food, have already undergone a decomposition which has disorganized the principles of their aliments, and in a greater or less degree changed their nature. The strength of the digestive organs, which varies in each species of animal, the difference of food, and the mixture of the digestive fluids furnished by the stomach, modify these manures to a very considerable extent.

The excrements of some animals, as of pigeons, fowls, &c., are employed without undergoing any new fermentation, because they consist mostly of salts, and contain but few juices. Fields are often manured with the excrements of sheep, collected in the sheep-folds, or scattered, as in parks, by the animals themselves upon the soil; but in general the dung of horses and of horned cattle is made to undergo a new fermentation before being applied as manure.

The most general method of producing the fermentation of the dung of quadrupeds, is, in the first place, to form upon the ground of sheep-folds and stables a bed of straw or dry leaves. This bed is covered with the solid excrements of the quadrupeds, and impregnated with their urine. At the end of fifteen days or a month, it is caried to a place suited for fermentation, and there formed anew, care being taken every day to spread upon it litter and the scatterings of the racks. The formation of these beds, contributes much to the healthfulness of the stables and to the cleanliness of the animals. When from a scarcity of straw, the beds can not be made of sufficient thickness, or renewed often enough, a layer may be formed of lime or gravel, broken fine and covered with straw. These earths will imbibe the urine, and when they are penetrated by it may be carried into the fields to be buried in the soil. The nature of the earth, upon which beds are formed in sheep-folds or stables, should vary according to the character of the soil which is to receive them, because, by attention to this, the soil may be improved as well as manured. For argillaceous and compact earths, the layers should be formed of gravel and the remains of old lime mortars; whilst those of fat marl or of clayey mud should be reserved for light and dry soils

In some countries where good husbandry is much attended to, the floors of the stables are paved and slightly sloping, so that the urine flows off into a reservoir, where it is fermented with animal and vegetable substances, and used to water the fields at the moment when vegetation begins to be developed.

The art of fermenting dungs with litter is still very incomplete in some parts of France. In one place they let it decay till the straw is completely decomposed; in another they carry it into the fields as soon as it is taken from the stables. These two methods are equally faulty. By the first nearly all the gases and nutritive juices are dissipated and lost; by the second, fermentation, which can take place only in masses, will be but very imperfectly carrried on in the field, and the rains can convey to the plants only that portion of the nourishment afforded by manure, which they can obtain by a simple washing.

The most useful art perhaps in agriculture, and that which requires the most care, is the preparation of dungheaps. It requires the application of certain chemical principles, which it is not necessary for me to explain, since it is sufficient to point out to the agriculturist the rules by which he should be governed in his proceedings, without requiring of him an extensive knowledge of the theory upon which they are founded.

Solid substances, whether animal, vegetable, or mineral, do not enter into plants unless they are previously dissolved in water, or are drawn in with that fluid in a state of extreme division.

Animal and vegetable substances which are by their nature insoluble in water, may, by being decomposed, form new soluble compounds, capable of furnishing nourishment for plants.

Animal and vegetable substances deprived by the action of water of their soluble particles, may, in the course of their decomposition, form new compounds susceptible of being dissolved. Of this I have given instances in speaking of mould.

That which renders the art of employing dung-heaps difficult, in proportion as it is useful, is, that some methods which are adopted occasion the loss of a part of the manure. In fact when the clearings of the farm-yard are carried fresh into the fields, and applied immediately to the soil, vegetation is undoubtedly benefitted by the salts and the juices contained in them; but the fibres, the fatness, the oils, remain inactive in the earth; and their final decomposition is slow and imperfect. If, on the contrary, the collections of the farm-yard be heaped up in a corner of it, the mass will speedily become heated, carbonic acid gas will be evolved, and afterwards carburetted hydrogen, ammonia, azote, &c. A brown liquid, of which the colour deepens gradually almost to black, moistens the heap, and flows upon the ground around it; all is by degrees disorganized; and when the fermentation is completed, there remains only a residue composed of earthy and saline substances, mixed with a portion of blackened fibre, and some carbon in powder.

In those places where they do not allow fermentation to arrive to this degree of decomposition, they still lose, by mismanagement, a considerable part of their manure.

The most common method is, to deposit in a corner of the farm-yard the dung and litter, as it is drawn from the stables, adding to the mass every time these are cleared, and allowing it to ferment till the period of sowing arrives, whether it be in spring or autumn, when it is carried upon the fields requiring it.

This method presents many imperfections. In the first place, several successive layers being formed, no two of them can have undergone the same degree of fermentation; in some it will have gone on for six months, and in others but for fifteen days. In the second place, the heap, being exposed to rains, will, by frequent washings, have parted with nearly all its salts and soluble juices. In the third place, the extractive portions of the lower and central parts of the mass, the mucilage, the albumen, and the galatine, will be entirely decomposed; and, lastly, those gases which nourish plants, if developed at their roots, will have escaped into the air; and Davy has observed, that, by directing these emanations beneath the roots of the turf in a garden, the vegetation was rendered very superior to that in the vicinity.

How long should dunghills be allowed to ferment; and what methods ought to be pursued in forming them? This question leads us to cast a glance upon the nature of dunghills; and it is not till after having ascertained the difference amongst them, that it can be answered.

The principal parts of vegetables which are employed as manure contain mucilage, gelatine, oils, sugar, starch, extractive matter, and often albumen, acids, salts, &c. with an abundance of fibrous matter, insoluble in water.

The different substances afforded by animals, including all their excretions, are gelatine, fibrine, mucus, fat, albumen, urea, uric and phosphoric acids, and some salts.

The greatest part of the substances, constituting animals and vegetables, are soluble in water; and it is evident that in that state they can be employed as manures without previous fermentation; but it is necessary, that those which contain much insoluble matter should be decomposed by fermentation, because by that process their nature is changed, and they form new compounds, which, being capable of solution, can pass into the organs of plants.—*(To be Continued.)*

TENTH ANNUAL FAIR OF THE AMERICAN INSTITUTE.

This exhibition of American productions will be held at Niblo's Garden, in the city of New-York, October 16, 1837.

Gold and Silver Medals, Diplomas, and other rewards, will be bestowed on the same liberal principles as on former occasions. Exhibitors are requested to deliver their articles at the garden on Friday, the 13th of October. Such as are intended for competition, must be brought on the 13th or 14th, that they may be arranged and examined before the opening for the admission of visitors, which will be on Monday, the 16th of October, at 12 o'clock.

The managers are gratified to be able to state, that notwithstanding the lamentable contrast between this and last year in the business affairs of our country, the applications from those intending to exhibit are as numerous as ever, evincing that the spirit of emulation has not yielded, but remains in full vigor, and promises, from the abundant resources of skill and invention, a display as ample and variegated as in seasons the most prosperous. The desolating revulsions of commerce have powerfully impressed our fellow-citizens with the necessity of clinging more closely to our own domestic resources, and of producing, by the aid of native genius and industry, those necessaries and conveniences requisite to competence, comfort and independence.

These considerations seem to have imparted fresh stimulus to ingenuity, and opened a brighter prospect of future improvement and display than ever. And why should not a reasoning, calculating, self confiding people arrive at such conclusions? The elements of wealth remains unharmed by the revulsions of trade. Abundant harvests bear testimony that the laws of vegetation are beyond the influences of an unsound currency. The muscular, as well as the mental energies of a great and increasing nation of freemen, are unbroken Dormant industry, refreshed by a short repose, will start again, with accelerated motion and accumulated power. There is every where manifestations conclusive that we may safely rely on our own ample and independent resources. Our country, though in its infancy, presents a population sufficient for an empire more ingenious and more industrious than any other that has ever existed. With such a people, and with a fertile territory embracing all climates, we cannot fail, with suitable incitements, to rival any and all other countries in the great work of improvement and civilization.

Well conducted public Fairs signally contribute to these results. Impressed with these views, the public, for nine successive years, have countenanced, cherished and supported the Exhibitions of the American Institute as their favorite institution, and we trust they will continue with their accustomed zeal to cherish and sustain it.

The farmer is invited to exhibit his useful implements, and the rare, curious and extraordinary productions of his agriculture culture. To the manufacturer and artist, we look for specimens of the choice productions of the factory and the workshop; and the innumerable varieties of taste and genius, mingled, as usual, with the ornamental and delicate workmanship of female hands. Appropriate places will be provided for all the varieties from every department of industry, whether minute or bulky, natural or artificial. Suitable preparations will also be made for enlivening the scene with the animating influences of moving machinery.

The friends of National Improvement throughout the country, are respectfully invited to join in this anniversary celebration of Industry and the Arts.

Managers.—T. B. Wakeman, Adoniram Chandler, Martin E. Thompson, John Mason, Edward T. Backhouse, James Hamilton, E. D. Plimpton, W. P. Disosway, Timothy Dewey, George Bacon, Dudley Marvin, John Sampson, of New-York; William Halsey, James Miller, Stephen Dod, of Newark, New-Jersey; Jeremiah Johnson, of Brooklyn, L. I.

OUTLINE OF THE FIRST PRINCIPLES OF HORTICULTURE.

BY JOHN LINDLEY, F. R. S., &c. &c.

(*Concluded from page* 123.)

XII. PERSPIRATION.

299. It is not, however, exclusively by the action of light and air that the nature of sap is altered. Evaporation is constantly going on during the growth of a plant, and sometimes is so copious, that an individual will perspire its own weight of water in the course of 24 hours.

300. The loss thus occasioned by the leaves is supplied by crude fluid, absorbed by the roots, and conveyed up the stem with great rapidity.

301. The consequence of such copious perspiration is the separation and solidification of the carbonized matter that is produced for the peculiar secretions of a species.

302. For the maintenance of a plant in health, it is indispensable that the supply of fluid by the roots should be continual and uninterrupted.

303. If any thing causes perspiration to take place faster than it can be counteracted by the absorption of fluid from the earth, plants will be dried up and perish.

304. Such causes are, destruction of spongioles, an isufficient quantity of fluid in the soil, an exposure of the spongioles to occasional dryness, and a dry atmosphere.

305. The most ready means of counteracting the evil consequences of an imperfect action of the roots is by preventing or diminishing evaporation.

306. This is to be effected by rendering the atmosphere extremely humid.

307. Thus, in curvilinear iron hot-houses, in which the atmosphere becomes so dry in consequence of the heat, that plants perish, it is necessary that the air should be rendered extremely humid, by throwing water upon the pavement, or by introducing steam.

308. And in transplantation in dry weather, evergreens, or plants in leaf, often die, because the spongioles are destroyed, or so far injured in the operation as to be unable to act, while the leaves never cease to perspire.

309. The greater certainty of transplanting plants that have been growing in pots is from this latter circumstance intelligible.

310. While the utility of putting cuttings or newly transplanted seedlings into a shady damp atmosphere, is explained by the necessity of hindering evaporation.

XIII. CUTTINGS.

311. When a separate portion of a plant is caused to produce new roots and branches, and to increase an individual, it is a cutting.

312. Cuttings are of two sorts—cuttings properly so called, and *eyes.* (319.)

313. A cutting consists of an internodium, or a part of one, with its nodus and leaf-bud.

314. When the internodium is plunged in the earth it attracts fluid from the soil, and nourishes the bud until it can feed itself.

315. The bud, feeding at first upon the matter in the internodium, gradually elongates upwards into a branch, and sends organized matter downwards, which becomes roots.

316. As soon as it has established a communication with the soil, it becomes a new individual, exactly like that from which it was taken.

317. As it is the action of the leaf-buds that causes growth in a cutting, t follows that no cutting without a leaf-bud will grow;

318. Unless the cutting has great vitality and power of forming adventitious leaf-buds, (119.) which sometimes happens.

319. An eye is a leaf-bud without an internodium.

320 It only differs from a cutting in having no reservoir of food on which to exist, and in emitting its roots immediately from the base of the leaf-bud into the soil.

321. As cuttings will very often, if not always, develope leaves before any powerful connection is formed between them and the soil, they are peculiarly liable to suffer from perspiration.

322. Hence the importance of maintaining their atmosphere in an uniform state of humidity, as is effected by putting bell or other glasses over them.

323. In this case, however, it is necessary that if air-tight covers are employed, such as bell glasses, they should be from time to time removed and replaced, for the sake of getting rid of excessive humidity.

324. Layers differ from cuttings in nothing except that they strike root into the soil while yet adhering to the parent plant.

325. Whatever is true of cuttings is true of layers, except that the latter are not liable to suffer by evaporation, because of their communication with the parent plant.

326. As cuttings strike roots into the earth by the action of leaves or leaf-buds, it might be supposed that they will strike most readily when the leaves or leaf-buds are in their greatest vigor.

327. Nevertheless, this power is controlled so much by the peculiar vital powers of different species, and by secondary considerations, that it is impossible to say that this is an absolute rule.

328. Thus Dahlias and other herbaceous plants will strike root freely when cuttings are very young; and Heaths, Azaleas, and other hard wooded plants, only when the wood has just begun to harden.

329. The former is, probably, owing to some specific vital excitability, the force of which we cannot appreciate; the latter either to a kind of torpor, which seems to seize such plants when their tissue is once emptied of fluid, or to a natural slowness to send downwards woody matter, whether for wood or not, which is the real cause of their wood being harder.

330. If ripened cuttings are upon the whole the most fitted for multiplication, it is because their tissue is less absorbent than when younger, and that they are less likely to suffer either from repletion or evaporation.

331. For, to gorge tissue with food, before leaves are in action to decompose and assimilate it, is as prejudicial as to empty tissue by the action of leaves, before spongioles are prepared to replenish it.

332. For this reason pure silex, in which no stimulating substances are contained (silver sand,) is the best adapted for promoting the rooting of cuttings that strike with difficulty.

333. And for the same reason, cuttings with what gardeners call a *heel* to them, or a piece of the older wood, strike root more readily than such as are not so protected. The greater age of the tissue of the heel renders it less absorbent than tissue that is altogether newly formed.

334. It is to avoid the bad effect of evaporation that leaves are usually for the most part removed from a cutting, when it is first prepared.

XIV. SCIONS.

335. A scion is a cutting (311.) which is caused to grow upon another plant, and not in earth.

336. Scions are of two sorts, scions properly so called, and *buds* (354.)

337. Whatever is true of cuttings is true also of scions, all circumstances being equal.

338. When a scion is adapted to another plant, it attracts fluid from it for the nourishment of its leaf-buds until they can feed themselves.

339. Its buds thus fed gradually grow upwards into branches, and send woody matter downwards, which is analogous to roots.

340. At the same time the cellular substance of the scion and its *stock* adheres (19.) so as to form a complete organic union.

341. The woody matter descending from the bud passes through the cellular substance into the stock, where it occupies the same situation as would have been occupied by woody matter supplied by buds belonging to the stock itself.

342. Once united, the scion covers the wood of the stock with new wood, and causes the production of new roots.

343. But the character of the woody matter sent down by the scion over the wood of the stock being determined by the cellular substance, which has exclusively a horizontal developement, (73.) it follows that the wood of the stock will always remain apparently the same, although it is furnished by the scion

344. Some scions will grow upon a stock without being able to transmit any woody matter into it; as some Cacti.

345. When this happens, the adhesion of the two takes place by the cellular substance only, and the union is so imperfect that a slight degree of violence suffices to dissever them.

346. And in such cases the buds are fed by their woody matter, which absorbs the ascending sap from the stock at the point where the adhesion has occurred; and the latter, never augmenting in diameter, is finally overgrown by the scion.

347. When, in such instances, the communication between the stock and the scion is so much interrupted that the sap can no longer ascend with sufficient rapidity into the branches, the latter die: as in many peaches.

348. This incomplete union between the scion and its stock is owing to some constitutional or organic difference in the two.

349. Therefore care should be taken that when plants are grafted on one another, their constitution should be as nearly as possible identical.

350. As adhesion of only an imperfect nature takes place when the scion and stock are, to a certain degree, dissimilar in constitution, so will no adhesion whatever occur when their constitutional differences are very decided.

351. Hence it is only species very nearly allied in nature that can be grafted on each other.

352. As only similar tissues will unite (19.) it is necessary in applying a scion to the stock, that similar parts should be carefully adapted to each other; as bark to bark, cambium to cambium, and alburnum to alburnum.

353. The second is more especially requisite, because it is through the cambium that the woody matter sent downwards by the buds must pass; and also because cambium itself, being organizing matter in an incipient state, will more readily form an adhesion than any other part.

354. The same principles apply to *buds*, which are to scions precisely what eyes (319.) are to cuttings.

355. Inarching is the same with reference to grafting that layering (324.) is with reference to striking by cuttings.

356. It serves to maintain the vitality of a scion until it can form an adhesion with its stock; and must be considered the most certain mode of grafting.

357. It is probable that every species of flowering plant, without exception, may be multiplied by grafting.

358. Nevertheless, there are many species and even tribes that never have been grafted.

359. It has been found that in the vine and the walnut this difficulty can be overcome by attention to their peculiar constitutions; and it is probable that the same attention will remove supposed difficulties in the case of other species.

XV. TRANSPLANTATION.

360. Transplantation consists in removing a plant from the soil in which it is growing to some other soil.

361. If, in the operation, the plant is torpid, and its spongioles uninjured, the removal will not be productive of any interruption to the previous rate of growth.

362. And if it is growing, or evergreen, and the spongioles are uninjured, the removal will produce no further injury than may arise from the temporary suspension of the action of the spongioles, and the noncessation of perspiration during the operation.

363. So that transplantation may take place at all seasons of the year, and under all circumstances, provided the spongioles are uninjured.

364. This applies to the largest trees as well as to the smallest herbs.

365. But as it is impossible to take plants out of the earth without destroying or injuring the spongioles, the evil consequences of such accidents must be remedied by the hindrance of evaporation.

366. Transplantation should, therefore, take place only when plants are torpid, and when their respiratory organs (leaves) are absent; or, if they never lose those organs, as evergreens, only at seasons when the atmosphere is periodically charged with humidity for some considerable time.

367. Old trees in which the ro ts are much injured, form new ones so slowly, that they are very liable to be exhausted of sap by the absorption of their very numerous young buds before new spongioles can be formed.

368. The amputation of all their upper extremities is the most probable prevention of death; but in most cases injury of their roots is without a remedy.

369. Plants in pots being so circumstanced that the spongioles are protected from injury, can, however, be transplanted at all seasons, without any dangerous consequences.

CATTLE SALE AT POWELTON.

[*From the Philadelphia National Gazette.*]

Our agriculture readers will doubtless be gratified to learn some particulars respecting the extensive sale of cattle, which took place on the 12th inst. at Powelton, and therefore we give them the following details, for which we are indebted to the courtesy of the auctioneers, Messrs. Thomas & Son. Upwards of two thousand persons were present on the occasion. Of the amounts as near as can be ascertained, about $4,400 were purchased for and by gentlemen of Ohio; $3,600 by gentlemen of Virginia; and $4,000 by those of Philadelphia city and county; but it is not known at present exactly from what parts of the Union were the other purchasers, though they came from all directions. The bidding for the cows was very spirited, prices rather exceeding the expectation of the owners; for the bulls, however, they fell short, making altogether a good average sale. Full bred cows are comparatively scarce, and accordingly they brought superior prices. The following is a correct report of the sale:

COWS.

Name.	*Age.*		*Amount.*
Ruth,	6 years old.		$360
Adelaide,	6	“	490
Minna,	5	“	520
Lucilla,	5	“	480
Empress,	5	“	420
Brighteyes,	4	“	490
Beauty,	4	“	540
Vermillion,	4	“	430
Nonsuch,	3	“	410
Media,	3	“	380
Ruby,	3	“	370
Mayflower,	3	“	515
Profitable,	3	“	550
Clarkville,	2	“	630
Virginia,	2	“	690
Woodbine,	2	“	400
Belicia,	1	“	450
Celebrity,	3	“	480
Isabella,	5	“	405
			$9,110

The above are all from Mr Whittaker, with the exception of the last, the cow Isabella.

BULLS

Name.	*Age.*		*Amount.*
Hector,	2 years old.		$475
Sir Robert,	2	“	350
Melbourne,	2	“	320
Maxwell,	1	“	400
Llewellyn,	1	“	210
Colostro,	1	“	260
Miser,	1	“	470
Brutus,	1	“	330
Delight,	1	“	370
P. of Wales,	1	“	310
Lord Fairfax	1	“	250
Bruce,	1	“	360
Primo,	1	“	310
Nimrod,	2	“	470
Colossus,	3	“	310
			$14,305

Sheep.

2 Bakewell breed,	$100	each,	$200
5 do	do	95	do	475
			Total,......	$14,980

The following belonged to other owners, and were not in the printed catalogue:

A Spanish Jack,......	$290	A Heifer, ...	$160
A Jennet and Colt,...	210	Dido, ...	75
Fitzroslin, ...	200		

Department of Health.

HINTS TO PARENTS AND THE SCHOOL-MASTER.

[*Extracts from the Economy of Health.*]

THIRD SEPTENNIAD—(14 to 21.)

Dangers of the third septenniad.—The third septenniad is indeed the spring of life. In it the seeds of good or evil, of virtue or vice, of science or ignorance, are sown. In it the physical functions act with boundless energy—the human frame expanding and taking on its form and dimensions; while the mental powers display, in the great majority of instances, their characteristic features, capacities and propensities. It is in this stage of rapid development, intellectual and corporeal, that the greatest difficulty exists in preserving the *physique* within the boundaries of health, and confining the *morale* within the limits of virtue. How many minds are wrecked how many constitutions ruined, during this septenniad!! The extent of the mischief,—even of the moral evil, is less known to the priest than to the physician At so early a period of life, when passions so much predominate over principles, it is not to be expected that the force of precept can be so efficiently a preventive as the fear of bodily suffering. If the youth of both sexes could see through the vista of future years, and there behold the catalogue of afflictions and sufferings inseparable attendants on time and humanity, they would pause, ere they added to the number, by originating maladies when nature is endeavoring to fortify the material fabric against the influence of those that must necessarily assail us in the progress of life! Yet it is in this very epoch that some of the most deadly seeds of vice and disease are implanted in our spiritual and corporeal constitutions—seeds which not merely "grow with our growth," but acquire vigor from our weakness, and obtain victory in our decay. This melancholy reflection is applicable to all classes and both sexes. The plebcian is not secured from the evil by poverty—nor the patrician by wealth. Neither are the middle classes protected by the golden mean in which they are supposed to be placed. Civilization has decreed, and society has sanctioned the fiat, that youth, during the third septenniad, shall experience much more tribulation of mind, and affliction of body, than was designed for it by nature or nature's God. The sedentary and insalutary avocations to which young people of both sexes, in the middle and lower classes of society, are confined, between the ages of fourteen and twenty-one, occasion dreadful havoc in health, and no small deterioration of morals. The drudgery, the scanty clothing, the bad food, and the exposure to the elements, of the most indigent classes, are scarcely more injurious to health and life, than the sedentary habits, the impure air, and the depressing passions of the various species of artizans, mechanics and shop-keepers in the classes immediately above them. * * Large as is the class to which I have been alluding, it is as a drop of water in the ocean compared to the myriads of youth, male and female, pent up in the foul atmospheres of our countless factories, inhaling alike the moral and physical poison, that corrupts the mind, while its enervates the body. * * * Youth, manhood, decripitude and decay, are the destiny of kingdoms as well as of individuals. The BODY POLITIC is subject to the same phases, revolutions, disorders and decay, as the human body. * * Nations are only aggregations of individuals; and whatever be the influence, whether good or evil, that operates on a considerable number of the population, that influence will radiate from ten thousand centres, and diffuse its effects, sooner or later, over the whole surface of society.

Over-exertion of the mind.—[In alluding to the *few* who enter our colleges, &c. and engage in the "fierce conflict for honors," our author adds,]—How often is the laurel converted into the cypress, to wave over the tomb of talent, or over the living wreck of mind and body! How often is the ship foundered, on this her first voyage, by carrying a press of sail that strained, bent, and sprung those masts, yards, and stays, which would have carried the vessel, under ordinary circumstances, through the various storms of life! To those who are not well acquainted with the intimate connexion between mind and matter, in this state of our existence, the almost *mechanical* influences to which the immaterial principle is subject, may appear incredible, and somewhat humiliating. Thus, the intellect may be, and every day is, stretched like a ligamant or muscle, till it snaps, or loses its elasticity and contractibility, and, for a time at least, becomes incapable of its ordinary functions. The human mind is exhausted by protracted thinking, in the same manner as the human body is exhausted by long-continued labor; but it is not so easily recruited by rest, still less by cordials.

Classics and mathematics.—In our universities, two channels are open to distinction—through classics and mathematics; or, in other words, through the paths of literature and science. The *former* is the most ornamental—the *latter* most useful. The one expands the imagination, the other fortifies the judgment. A moderate combination of the two would appear to be preferable to a high proficiency in any one of the branches. * * *Classical* refreshes the intellect, and gives wings to the fancy, after the dry problems and rigorous demonstrations of *geometry; the latter*, in turn, corrects the wanderings of the imagination among the fairy and fictitious scenes of poetry and mythology—brings back our thoughts to the sober truths of exact science, and disciplines the mind by the exercise of the judgment.

The master passions.—It is in the third septenniad that some of the PASSIONS, and many of the PROPENSITIES, dawn forth, and even take root. Previous to that period, when the appetite for food, drink, pastimes, exercise and sight-seeings are gratified, the youth falls into profound repose, to awake with renovated vigor for running the same round of enjoyments as before. But, in the third septenniad, a stranger appears upon the stage and soon assumes the leading character in the dramatis personæ —a character which he often sustains till the ninth, or even the tenth septenniad. I need hardly say that this passion is LOVE. It precedes and overrules the other master passions—as ambition, avarice, &c. which, at this early period of life, are represented by substitutes (emulation and economy) rather than actual occupants of the human microcosm. These three grand passions—LOVE, AMBITION, and AVARICE—are at all times antagonizing powers. Love is first in the field—and generally the first to quit the arena of contention. Ambition is the second in action, and the second to relinguish the struggle. Avarice is the youngest, that is, the latest born, and generally survives the other two.

Want of exercise in woman.—It is in the course of the third septenniad that the seeds of female diseases are chiefly sown—or, at least, that the soil is specially prepared for their reception and growth. The predisposition to infirmities and disorders of various kinds is effected by acts of OMISSION and COMMISSION. In the first class, need I mention the deficiency of healthy exercise of the body in the open air, and of intellectual exercise in judicious studies? We are told by mothers, that, in towns and cities, it is impossible for young females to take bodily exercise. Where there is the WILL, there will generally be found the MEANS. Even within the precincts of home, the hoop and the skip-rope might usefully supersede the harp and the guitar for one hour in a day. Gymnastic exercises have been hastily thrown aside—partly because some enthusiasts carried them to excess—partly because they were supposed to be inimical to the effeminacy of shape and features so much prized by parent and progeny—but chiefly, I suspect, from that languor and disinclination to exertion, which characterise the higher and even the middle classes of female youth. This deficiency of exercise in the open air may be considered the parent of one-half of female disorders, by multiplying and augmenting the susceptibilities to all external impressions. The pallid complexions, the languid movements, the torpid secretions, the flaccid muscles, and disordered functions, (including glandular swellings,) and consumption itself, attest the truth of this assertion.

Their clothing.—Insufficiency of exercise is greatly aided by scantiness of clothing. Among the poor, this evil is a misfortune, rather than a fault —among the rich it is a fault as well as a misfortune.

Lacing.—It is hardly necessary to state, that the vital function of respiration can only be carried on by the alternate expansion and contraction of the lungs. This apparatus cannot be filled with atmospheric air, except by the elevation of the ribs, or the descent of the diaphragm. In health, and in a state of nature, both these mechanical processes are employed, and then the individual derives all the advantages which free breathing can impart to the whole economy of the constitution. In certain diseases respiration can only be performed by *one* of these processes—but then it is carried on imperfectly and laboriously. Thus, when ribs are fractured, the chest must be secured from motion by bandages, and breathing is performed by the descent and ascent of the diaphragm. But how is it when both of these mechanical processes are crippled at the same time? Thus, in fashionable female attire, (and often in male attire also,) the abdomen is so compressed by the stays, that the diaphragm can only descend in the slightest degree—if at all—while the whole of the middle and lower part of the chest is so firmly girt by the same cincture, that the ribs then are kept motionless! The vital function of respiration, then, is carried on by a violent, though inefficient, effort of the diaphragm to descend, and by an excessive action of the muscles, and extraordinary elevation of the ribs in the upper part of the chest, where it is free from the pressure of the stays. Now, in this state of things, three distinct injuries are sustained, or injurious operations carried on. *First*, the too great pressure of the diaphragm on the stomach and upper bowels, by its violent efforts to descend: *secondly*, the *inaction* of the lower lobes of the lungs, from want of space for expansion: and *thirdly*, the *inordinate dilation* of the upper portions of the lungs, when the ribs are free, in order to compensate for the compressed state of the lower portions. All these injurious effects are greatly increased by muscular exertion—as by dancing, singing, &c. when the circulation is hurried, yet impeded; and when demands are made upon respiration which the lungs are incapable of supplying. It is at those times we see the upper part of the chest heaving with almost convulsive throes, and the countenance flushed by the impediments thrown in the way of the blood's return to the heart.

It is not a little remarkable, that, in nine-tenths of those who die of consumption, we find that the upper lobes of the lungs, corresponding with those of the chest that are most exposed to the atmosphere, least compressed by clothing, and more than usually strained in breathing, are the seat of excavations, commonly termed ulcerations, while the lower lobes of the lungs are generally found to be more or less consolidated, and comparatively impervious to air. * * These are not the only evils. The stomach and bowels are so compressed, that it is wonderful how they are able to perform their important functions at all! But although the resources of nature are almost inexhaustible in overcoming obstacles, yet the injurious effects of the habit alluded to, are numerous and potent enough to swell, very materially, the long catalogue of nervous and dyspeptic complaints. The growth of the whole body, and the freedom of all its functions, so much depend upon perfect digestion of our food, and conversion of our nutriment into healthy blood, that any impediment to that digestion, and that assimilation, must inevitably derange the whole constitution.

Matrimony.—There is one other evil, of commission, that I must advert to before closing this section—the commission of matrimony. I fear that many of my fair young readers may think I have placed this evil under the wrong head, and that it ought to be considered one of *omission* rather than commission. I am unable, in an essay of this kind, to state my reasons for postponing matrimony till the completion of the third septenniad in the female, and of the fourth septenniad in the male sex. Yet both sexes may safely take it for granted, that I have good reasons for advancing this dogma—deduced from long experience and extensive observation. To the male youth of modern times the admonition is hardly necessary, since they are growing amazingly prudent and cautious in taking this important step. In all matrimonial affairs they require the spur rather than the bridle, and therefore I may take leave of them for the present, as they are not likely to violate the precept I have laid down.

Not so the young ladies—or rather their mothers. But I shall only offer to them one dissuasive argument against too early matrimony. It is this:—that for every month spent in the marriage state during the third septenniad, a year will be deducted from the usual duration of their beauty and personal attractions! I ought not to say less—and I need not say more.

PRICE CURRENT.

ARTICLES.	New-York. Sept. 23.	Boston. Sept. 20.	Philadel'a. Sept. 18.	Baltimore. Sept. 19.
Beans white, bush........	2 00.. 2 25	1 37.. 1 75	1 37..1 62	1 25..1 50
Beef, best, cwt............	6 00.. 7 50	5 00.. 6 50	7 00..8 00	6 50..7 50
Pork, per cwt............	7 00., 9 00	7 00.. 9 00	8 00.11 00	6 00..7 50
Butter, fresh, pound, ...	18.. 22	20.. 25	13.. 14	20.. 25
Cheese, pound, ...	8.. 13	9.. 13	10.. 11	9.. 10
Flour, best, bbl......	8 00.. 9 25	8 00..11 00	8 12..8 75	8 25..9 37
GRAIN—Wheat, bushel, ..	1 30.. 1 70	....	1 60..1 80	1 50..1 80
Rye, do. ..	91.. 1 00	90.. 1 00	80..	.. 65
Oats, do. ..	40.. 50	75.. 78	.. 43	32.. 00
Corn, do. ..	1 04.. 1 06	93.. 1 06	1 00..1 00	93.. 95
SEEDS—Red Clover, lb...	13	13.. 14	9.. 11	7½.. 8½
Timothy, bushel,.	2 50.. 2 75	2 75.. 3 00	2 00..3 25	3 50..4 00
WOOL—Saxony, fleece, lb.	75.. 80	65.. 70	65.. 73	40.. 50
Merino, lb..... .	50.. 68	40.. 65	50.. 62	25.. 40
1-4 and com. lb...	40.. 60	40.. 45	40.. 44	28.. 30
Sheep, ...	2 50.. 5 00	1 67.. 3 00		
Cows and Calves,........	22 00..42 00	23 00..42 00		30 0..40 0
Cotton,..........	7.. 12	....	9.. 12	10.. 13

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

VOL. IV. ALBANY, NOVEMBER, 1837. No. 9.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.
J. BUEL, *Conductor.*
☞ *Office No. 3 Washington-street, opposite Congress Hall.* ☜
TERMS.—FIFTY CENTS PER ANNUM, TO BE PAID IN ADVANCE.

Special Agents.—JUDAH DOBSON, Philadelphia—Messrs. HOVEY, Boston—ISRAEL POST & Co. Booksellers, 88 Bowery; ALEX. SMITH, Seedsman, Broadway. ALEX. WALSH, Lansingburgh, gratuitous agent. Any gentleman who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

THE PROFITS OF THE OLD AND THE NEW HUSBANDRY CONTRASTED.

By the *old husbandry*, we mean the prevailing system of the country, which is progressively deteriorating our lands, lessening their products, and driving our farmers to the west—a system which neither makes the land dry, nor keeps it rich—and which tills, and mows, and pastures the same fields, till the plough land is worn out, the grasses in the meadow land run out, and the pastures overgrown with bushes, noisome weeds and mosses. We call it the EXHAUSTING system—for it not only exhausts the soil, but the purse of the cultivator.

By the *new husbandry*, we mean the system which has enriched Great Britain, and which is now enriching every district of our country where it has been fully adopted—the system of draining, manuring, alternating of clover and roots with grain, &c. and of blending cattle with grain husbandry. We call this the AUGMENTING system—because it augments, or at least preserves, the fertility of the soil, and secures the profits of agricultural labor.

The first business of clearing new farms, is almost necessarily exhausting; because a virgin soil seldom receives manures, and because the farmer has but little leisure to apply them, or room to alternate his crops. Necessity is then the supreme law; but it does not continue to be so after the farm is cleared up and well stocked. Yet the pioneer habit becomes so established by usage, as to be persisted in long after the necessity of the practice of it has ceased. The deterioration is so imperceptible to the cultivator, and his reasoning upon the matter so superficial, that his farm becomes worn out before he is aware of it, or thinks of adopting means of renovating its fertility. In this way most of the lands upon the seaboard, and in the old settled states, were impoverished, until necessity, which first induced the exhausting system, led to the introduction of a better one—the system of augmentation.

The new system of husbandry obtained a partial footing among us some forty years ago, through the intelligence and enterprise of distinguished individuals in Pennsylvania, New-York, and Massachusetts, who established agricultural societies in these states, and devoted their time and talents to promote agricultural improvements. In the neighborhoods of the capitals of these states, agricultural improvement has continued to progress, and has spread more or less to different parts of the union; and where it has obtained a footing, it has produced a remarkable change in the pecuniary, moral and intellectual condition of society.

The leading principles in the new system are, as we have already hinted, draining, manuring, alternating crops, the culture of roots and artificial grasses, the substitution of fallow crops for naked fallows, the application of marl, lime and other earthy matters, to improve the mechanical texture and the fertility of the soil, and the blending of tillage and grass husbandry—of cattle and grain. It is affirmed by intelligent practical men, that under this system, more cattle can be fed and fattened, upon the roots and straw of the tillage land, than can be fed and fattened upon a like number of acres, kept permanently in meadow and pasture, leaving the grain as extra nett profit. The new system prevailed long in Flanders, ere it was introduced into Great Britain; and it is perhaps no where now carried to higher perfection than in Scotland. The Scotch excel in their system of draining, and are perhaps behind few in the improvement of their stock, and judicious alternation of their crops. Grass grounds are there almost invariably broken up the second or third year after seeding.

In contrasting the profits of the old and new husbandry, we shall avail ourselves, in the first instance, of the practice and calculations of the late Chancellor Livingston, as recorded in the first volume of the transactions of the old agricultural society. They were written in 1796, before root culture, an important branch of the new husbandry, was practised among us. And they rather tend to show the difference between naked fallows and fallow crops, in the profits of the farm, than the difference between the old and new husbandry.

"I will endeavor," says the Chancellor, "to state the profit and loss of two farmers, each cultivating, besides their meadows, one hundred acres of arable land, one in the usual mode of this country, and the other by the intervention of vetches and clover.

Common agriculture 100 acres.				*Profits per acre.*		
20 acres of Indian corn, 35 bushels, at 4*s.*				£7	0	0
20 oats on corn ground of the preceding year, 20 bushels, at 2*s.*				2	0	0
20 summer fallow,				0	0	0
20 wheat, 10 bushels, at 8*s.*				4	0	0
20 wheat stubble in pasture,				0	2	0
100 acres. Five years yield per acre,				£13	2	0
Expenses per acre for five years.						
Indian corn, ploughing, &c.	£2	0	0			
Oats, twice ploughed,	1	0	0			
Harrowing, and seed, and sowing and harvesting,	0	14	0			
Summer fallow,	1	10	0			
Wheat seed and harvesting,	1	0	0			
Rent on five acres, at 4*s.* a year,	1	0	0			
				7	4	0
Balance of profit on one acre in 5 years, or 5 acres one year,				£5	18	0

Profit on farming by intervention of fallow crops instead of fallowing.						
20 acres Indian corn,				£7	0	0
20 do. vetches, 25 cwt. at 2*s.* 6*d.*				3	2	6
20 do. wheat, 12 bushels,				4	16	0
20 do. clover, 25 cwt. 2*s.* 6*d.*				3	2	6
20 do. the same,				3	2	6
Five years produce of one acre,				£21	3	6
Expenses.						
Indian corn,	£2	0	0			
Ploughing corn ground for vetches,	0	10	0			
Seed 3 bushels and sowing, &c.	0	12	0			
Cutting and making hay,	0	8	0			
Vetch stubble ploughed once for wheat, seed and harvesting,	1	10	0			
12 lbs. clover seed and sowing,	0	15	0			
Mowing clover paid by the second crop,	0	0	0			
Rent 20*s.* or 4*s.* a year,	1	0	0			
				6	15	0
To balance of profit per acre in five years, or on five acres in one,				£14	8	6

"Thus while one farmer makes £1.3.5 a year, per acre, upon his hundred acres, clear of expense, the other makes £2.17.5—the one gets little better than one hundred, while the other gets nearly three hundred a year. In the above statement I have given one farmer credit for two bushels of wheat more than the other, since I am persuaded the vetch crop will improve the ground more than the difference, as the dung given to the corn will not be exhausted by the intervention of an oat crop before the wheat is sown. To this profit should also be added the continued improvement of the crop by the one mode of husbandry, and the continued decrease by the exhausting the land in the other.

"The fallow farmer has no fodder which the rotation farmer does not possess, except the straw of his oats, which we will value at half a ton of hay per acre. He then has from his oats on 20 acres, ten tons.

The fallow crop farmer from 20 acres vetches,	25	*tons.*
From 40 acres clover,	50	do.
	75	
Deduct the oat straw,	10	
Superiority of fallow crop farmer,	65	tons.

"He can thus winter, at one ton a head, 65 head of cattle more than the fallowing farmer, and as each of these will afford at least six loads of dung, he will be able to carry out 390 loads of dung more than the fallowing farmer, besides that he has one exhausting crop less. It will be easy to see what difference this must make in a few years in the produce of a farm, and how much more it would be than I have rated it at. We often ask with astonishment, how the British farmer can afford to pay a guinea an acre rent? [a tenth of his produce in tithes, and an enormous tax.] The difficulty is solved if we examine the above statement; since the difference between fallowing, and establishing a rotation of crops, amounts to more than the difference of our rents and theirs. I know there are some stiff soils on which it would be difficult to establish the rotation I mention, but this should be no argument against it where the soil will admit of it, particularly as clover and vetches may be introduced with a certainty of success, even if the ground should be naturally poor, by the addition of only four bushels [one bushel] of gypsum to the acre, which will indeed add 16*s.* [4*s.*] a year to the acreable expense, but it will in all probability, at the same time add nearly a ton to the produce. * * * I would not be considered as confining my observations to vetches, which have not yet been sufficiently tried in this country; potatoes or carrots—or peas sown thin, and cut green for provender, may all answer the purpose, but above all, clover. If this last is the only crop to be brought into the rotation, the system must be changed to the following course: 1st, corn; 2d, barley and clover; 3d and 4th, clover; 5th, wheat and one ploughing; by this means a crop of clover will be substituted for a fallow."

Thus far the extract; to which we would add this suggestion, that as the culture of turnips is now successfully progressing among us, and as the winter wheat crop is becoming so precarious, as to render a resort to the spring varieties of that grain probable, the following course would be better adapted to our husbandry, than the one recommended above: 1st year, corn or potatoes, upon a clover lay, manured with long manure; 2d year, spring wheat with clover seeds; 3d year, clover cut, and followed by turnips; 4th year, barley or oats, with grass seeds; 5th year, meadow; 6th year, pasture. In this way seven crops would be obtained in six years; three of them would be decidedly ameliorating, and but two particularly exhausting—and in five of the seven years the field would afford pasture in autumn. Two objections may be started to this course, first, that the clover cannot be cut in time to get in the turnip crop, in the third year; and, 2d, that sowing grass seeds twice in the course will be too expensive. To the first objection we offer our common practice, which is, to sow our ruta baga upon a clover ley,—the small southern clover—after the grass has been cut for hay—the white turnip may be put in four weeks later. To the second objection we answer, that the value of the clover ley, to the soil, to say nothing of the feed which the crop will afford to cattle, will twice repay the cost of the seed. We are satisfied, from experience, that it is profitable to sow clover with every crop of small grain, on lands adapted to alternate husbandry.

But to come back to our subject. Our readers have probably all heard of the agricultural school at Hoffwyl, in Switzerland, where science is combined with practice, and where, under M. Fellenburgh, the new system of husbandry has for some time been in successful operation. The celebrated Mr. Brougham visited this school in 1816, and in a report to the British parliament, on education, he gives the results of his examination and inquiry The Hoffwyl establishment comprises but 214 acres. The annual average profit of the pattern farm alone, for four years, amounted, according to Mr. Brougham's statement, to 886 pounds sterling, or about $4,000, *exclusive of the cattle concern*, which was kept separate.

In Rees' Encyclopædia, we are furnished with numerous comparisons, in detail, between the old and new systems of husbandry, two or three of which we will notice, in abstract. The first comparison is made on a mixed, or grazing, breeding and tillage farm, of 314 acres, in York. Under the old system the nett profits amounted to 313*l.* 10*s.* and under the new system the same lands yielded a nett profit of 596*l.* or near 100 per cent increase. The second case is that of a tillage farm, of 139 acres, in Lincolnshire. Under the old system the profits were 130*l.*—under the new 452*l.*—difference in favor of the latter 322*l.* or 250 per cent. The third statement exhibits the profits of an acre of land, being the medium of several hundred acres, in Yorkshire, for six years. Under the old system the profit was 1*l.* 9*s.* 3*d.*—under the new 17*l.* 6*s.* 9*d.*—an increased gain of more than *eleven hundred* per cent in favor of the latter. The medium profit of an acre in tillage, in England, is 27 to 36 dollars per annum. The nett profit upon Mr. Harris's farm, near Poughkeepsie, which we noticed in our third volume, was more than twenty-three dollars per acre.

These facts will suffice to show the great superiority of the *new*, over the *old* system of farming.

By way of improvement.—The old fashioned farmer is admonished by the foregoing statements, that he must mend his ways if he would prosper in his business,—that he must study, practise and adopt the new system—drain his land,—economise and apply his manures—alternate his crops—cultivate roots and clover, and increase his stock. The new settler should be admonished to adopt a like course, to perserve the fertility of his soil, and to perpetuate its profits to his children.

In travelling westward, we have remarked an astonishing recklessness among farmers in regard to their manures, the primary source of fertility. But few cattle yards are cleaned in the spring, and many not at all; and we are told of a *man*,—for we cannot call him a *farmer*—who chuckled mightily among his neighbors, alledging that he had *taken in* the buyer of his farm, inasmuch as he would have to remove the barn, *on account of the manure which surrounded it!* These remarks apply particularly to the country east of Onondaga. West of that the great wheat farmers sometimes take a more summary way to disencumber their barns and yards—they cart their straw to the field and *burn it!* This is no fiction. How long will it take, under this system, to bring down the fertility of the prolific west, to the standard of worn out lands!

ROHAN POTATO.

The readers of the Cultivator may remember our former notices of this vegetable, as a species of uncommon size and productiveness. We obtained two tubers from France last fall, and the kindness of an esteemed friend, J. A. Thompson, Esq. of Catskill, enabled us to increase our seed to twelve pounds. We divided the tubers into sets of two eyes each, and planted one set in a hill, four feet apart, in a piece of ground much shaded, and in rather low condition. We dug, weighed and measured the crop on the 28th September. It weighed 525 pounds, and measured nine bushels—35 of the largest tubers filling a bushel basket. We have hardly been able yet to decide upon the quality of this potato, having barely tasted of one; yet we deem it equal to the English white, orange or the common peach blossom variety, which are the kinds commonly cultivated. Others, however, in whose opinion we place great confidence, do not hesitate to pronounce them superior for the table. They are undoubtedly the most productive variety of the potato we have ever met with.

While on the subject of the potato, we cannot but express our surprise, that in our journeyings we seldom have good potatoes set before us. They are mostly yellow fleshed, often clammy, and sometimes strong and unpalatable. Our farmers look more to the yield than to the quality. Of the better kinds known here, we may enumerate the following:

1. *Kidneys*, or *foxites*, white flesh, rather small, and seemingly deteriorating, as an old variety.
2. *Pink eyes*, white flesh, rather kidney shaped, yield well, and are yet in their prime.
3. *St. Helena*, very similar in flesh, shape, color and quality to the foregoing, without the pink eyes, or blotches—to us a new variety.
4. *Early kidneys*—real kidney shaped, smooth, white and of fair size—the best early variety.
5. *Mercer*—well known and deservedly liked.
6. *Sault St. Maria*—the true kind large, long, dark colored and good.
7. *Liverpool blues*—colored, good size and productive. Boil white, and may be placed in the first class for the table.

The foregoing we esteem the best kinds. There may be other kinds equally good, and some that we have enumerated may be known by other names. The *forty-fold* has been highly commended for its productiveness and good qualities, with what truth we will not venture to say.

EXPERIMENT IN HARVESTING CORN.

We think it has been well established, in repeated experiments, that the old, and in many cases present practice, of topping corn, very considerably diminishes the quantity of grain, a result which vegetable physiologists had long ago proclaimed. Desirous of knowing how far the product would be diminished by cutting up the entire crop, at the ordinary period of topping, we invited the public attention to the subject in our March number, and have subsequently instituted a small experiment, the result of which we give below. We do not mean to intimate that this experiment is conclusive, though the result is such as we expected; and we therefore again invite gentlemen who may have experimented in the matter, to forward us the results, in order the better to arrive at a correct conclusion, in a matter which is certainly of high interest to the farmer; for if other trials justify our conclusions, an immense loss is annually sustained by the practice of topping corn.

On the 16th of September we selected thirty-two hills of corn,—being a good sample of two acres—in four contiguous rows, eight hills in a row, and topped them in the old way.

We selected thirty-two hills in like manner, adjoining the preceding, which we cut at the roots, and stooked, at the same time.

And we left thirty-two hills adjoining the last, to ripen on the entire stalk.

The three parcels were apparently alike.

On the 9th of October, we picked, husked and weighed each parcel separately. The weight, and number of ears, of all descriptions, were as follows:

No. 1 standing, weighed 62¾, and had 139 ears.
No. 2 cut up, " 63¼, " 145 "
No. 3 topped, " 55½, " 135 "

We then equalised the number of ears, by taking four from No. 1, and ten from No. 2, leaving 135 in each. The weight was then as follows:

No. 1 standing,.................. 61¼ pounds.
No. 2 cut up,.................... 60¼ "
No. 3 topped,.................... 55½ "

The field having been planted precisely three feet distant between the rows, and about two and a half feet the other way, would average 5,808 hills on the acre. The acre would, therefore, according to the above results, give the following product in pounds:

The standing corn,		10,616 pounds.
The cut up	do.	10,436 "
The topped	do.	9,982 "

It follows, that the loss by topping an acre would be 634 pounds; do. by cutting up 181 pounds; and that cutting up has an advantage over topping of 453 pounds, independent of the important gain in the forage.

We then shelled a bushel, which required 78 pounds in the ear,—the grain weighing 53 pounds and the cobs 25 pounds. When perfectly dry the corn weighs 60 to 62 pounds. Dividing the total pounds per acre by 78,—the number of pounds of ears required for a bushel of shelled corn.—the product in bushels, under the different modes of management, would be as follows:

Standing corn,	136 bushels	8 pounds.
Cut up "	133 "	62 "
Topped "	127 "	76 "

Deduct ten per cent for shrinkage, on drying to a merchantable condition, and the product would then be as follows, omitting fractions:

The standing corn,	per acre	122 bushels.
The cut of do.	"	120 "
The topped do.	"	114 "

That our southern patrons may understand the cause of this great product, it will be only necessary for us to state, that in our mode of planting we produce on an acre, if there are no deficiencies, as there need not be if plenty of seed is put in, 23,232 stalks, which on the assumption that each stalks produces an ear, and that the ears average a gill each, which is much under the mark with the Dutton corn, the product would be about 90 bushels. The southern corn, at four and a half feet distance, two stalks in a hill, would give only about 4,300 stalks; now supposing this to be the Baden variety, giving four ears on a stalk, the total number of ears would be but 17,200 on the acre, or about 6,000 ears, or gills, less than our Dutton crop, with one ear on a stalk.

OLDEN TIMES—1796.

CLEANLINESS INCULCATED.

The next article we shall notice in the memoirs of the old agricultural society, is a letter from Dr. S. L. Mitchell, to Rev. Dr. H. Muhlenburgh, on azote and its compounds, as they operate on plants as food, and on animals as poison.

This is a philosophical essay, calculated to impress upon the agriculturist and others, the great importance of cleanliness about their dwellings and out-buildings; and to demonstrate, that the filth which is suffered to accumulate in these places, while it is highly deleterious to animal health, abounding as it generally does in azote, is admirably calculated to feed and nourish farm crops—that plants have the power of destroying pestilential fluids, and of rendering the atmosphere which has been contaminated by them, healthy. What was then in a manner speculation, in these matters, has since become established by chemical demonstration. Plants and animals reciprocally benefit each other in their influence upon the atmosphere. The following extract from this paper is particularly worthy the consideration of house-keepers:—

"Septic substances, (substances containing azote or nitrogen,) the offal of slaughtered animals, the refuse of house-keeping, are, when mingled in due quantity with the soil, justly ranked among the best fertilizers. The impregnation of land about houses and barns long occupied with such materials, is the acknowledged cause of such superior productiveness.—While these manures are mixed with earth in such quantity as to promote and not overpower vegetable life, their noxious effluvia are repressed, or their virulence counteracted, by the mediation of plants. The instrumentality of these classes of animated beings, [i. e. plants,] seems to be intended to keep the great balance of nature in equipoise, and prevent either scale being overloaded with materials destructive of animal life.—But it nevertheless sometimes happens, that in cellars, and around country dwellings, in pig-styes and cow-pens near the house, there are accumulated great quantities of excrementitious and corrupting substances, which, if seasonably carted away, tend eminently to fertilize the fields, and promote the growth of vegetables; while, at the same time, by remaining, they render the house foul and unhealthy, by the extrication of septic vapors. Neatness and elegance are thus found to be as conducive to good health as to good husbandry. The effluvia from the neighborhood of dirty cottages and mean huts, in the country, are of a like nature with pestilential fumes which insinuate themselves into foul and unventilated tenements in cities; and the reason is apparent; wherefore, as penury is generally associated with ignorance and nastiness, and often with indolence, these distempers rage with such tremendous violence among the poor.

"When I see a farmer permit such unwholesome substances to collect around his habitation, I cannot help reflecting on the danger which awaits him. The manure, which ought to have been carried away and spread over his lots, serves, as it lays, but to make his family sickly, to disable his laborers, and lead him to the dubious and expensive routine of physic; and, as in common life, as well as in logic, one blunder leads to another, the want of crops, and the consequent failure of income, drive him to mortgages, judgments and executions, those fatal expedients of law.

"In like manner, do I regret the indiscretion of tenants contending in our cities, which of them shall obtain, at a high rent, *a pestilential stand for business!* With the view of bettering themselves, they venture, at all hazards, amidst the poisonous exhalations of the neighborhood. By and bye, they are visited by distempers; and as they are honest and sober citizens, having no uneasy conscience to reproach them for their sins, they piously consider the affliction as a monition from heaven to try their virtue. Their sense of constancy and firmness forbids them to fly from the scourge of the Lord, and thus they religiously stick to the infected spot! What is the true interpretation of such conduct, but that both the farmer and the trader, obstinately persisting in the means of self-destruction, are guilty of a sort of suicide?"

Septic manures, or manures containing animal matter, or nitrogen, the doctor intimates, and as has since been fully established, constitute the best dressings for wheat, that grain containing nitrogen; indeed this seems to be a necessary constituent in the soil, to produce good wheat. We long ago broached the opinion, that the absence of lime, and the exhaustion of animal matter, in the soils of New-England, and other primitive formations, was the cause that good wheat could not be well grown in those districts. In their primitive state, a partial accumulation of animal matters had taken place in those formations; and the ashes produced by the burning of fallows, afforded the requisite quantity of alkali, containing nitrogen, to sustain one or more wheat crops upon newly cleared land. But those supplies being soon exhausted, *good wheat* is no longer produced, except at long intervals, although, with the aid of stable dung, *great straw* may be grown. Hence the deterioration of this grain in all the transition formation from Long Island Sound to Canada, through the borders of New-York, Connecticut and Massachusetts, and the west section of Vermont.

"Cabbages putrifying in a cellar," says the doctor, "have been known to render a house unhealthy. Corrupted coffee has been charged with emitting pestilence enough to desolate a neighborhood. The like may happen from rotten flax, hemp, onions, potatoes, and in short, all other plants which have derived septon (nitrogen) from the soil in which they grew."

GREAT CORN CROPS.

This volume contains an account of the great corn crops raised about 45 years ago, by Mr. Stevens, of Hoboken, and Mr. Ludlow, of Westchester, on a bet of 50 guineas. Mr. Stevens produced 118 bushels and two quarts on an acre; and Mr. Ludlow 98 bushels and eight quarts.—Mr. Stevens gave his acre 700 horse cart loads of street manure, planted in double rows 5½ feet asunder, and dibbled in his seed, with intervals of seven inches, in quincunx form. Mr. Ludlow dressed with 200 loads of street manure. These crops were deemed incredibly large then, but they are now frequently equalled in magnitude. These experiments show, that Indian corn is not likely to be injured by over-manuring; and should convince all slovenly farmers, who *summer yard*, and thereby waste half of their manure, that if they would apply it in the spring to their corn crop, they might greatly augment the product, and facilitate its ripening.

ON RAISING POTATOES.

Our readers have all heard of Webster's Spelling-Book, and Webster's Dictionary, but very few, we apprehend, have heard of Webster's rules for raising potatoes. They are, however, found in this volume, in a letter from Noah Webster to Secretary Mitchell; and as they are sound rules we transcribe their pith.

1. The seed potatoes should be those of full growth.
2. Cuttings produce more than whole potatoes.
3. Potatoes will not come to perfection without the sun. Therefore nothing is so prejudicial as to plant them too thick, especially on a rich soil.
4. The cuttings, in drills, where the land is light, will answer well at nine inches distance.

ON MANAGING CALVES.

Lemuel Clift, of Dutchess, gives his mode of managing calves. It consists in feeding on new milk two weeks, and then feed with flax-seed tea, mixed with skimmed milk, in equal portions—a gill of flax-seed boiled in two quarts of water, being a mess for 24 hours.

HOUSEHOLD ECONOMY.

A great deal may be saved in a family, and order and comfort promoted, by the mistress knowing *how things should be done*, though she may not be required, in all cases, *to do them herself*. And a vast deal is wasted, and many families ultimately reduced to want, for lack of economy in the household, and of intelligence and good supervision on the part of the mistress. The duty of women is to manage well the affairs of the household; and to qualify them for the performance of this duty, *girls* should learn what they ought to practise when they become *women*. Nothing is so great an accomplishment in a young married female—nothing of which a young husband is so proud—and certainly very few things so conducive to the welfare and happiness of the married life—as a familiar acquaintance with domestic duties, and a cheerful willingness to perform them with fidelity. Though we do not intend to assume the office of instructor in these domestic duties, we are willing, occasionally, to act the part of an auxiliary. With this view, we have published, with the aid of our correspondents, ample instructions for the economical fabrication of Indian corn into human food, in a great variety of forms. As bread is virtually the "staff of life,"—as good bread is more healthy and nutritious, and withal far more palatable than bad bread, we shall here offer some further remarks upon this subject.

TO MAKE GOOD HOUSEHOLD BREAD.

Mix four ounces of salt, three quarts of water, a pint of yeast, and a peck of flour—seconds is more wholesome than superfine, though less white—in a trough; when properly fermented, knead and divide it into loaves, and bake till done. 56 lbs. flour will weigh 69½ lbs. when baked.

TO MAKE POTATO BREAD.

Wash and boil good sized potatoes, peel and mash them fine, or pass them through a sieve; add two or three parts of flour to one of potatoes, and a little more yeast than usual. Knead well, and allow the dough to stand a proper time to ferment, and bake. The bread is as palatable to many, and as wholesome, as wheaten bread, and effects a considerable saving of flour, which may be an object in scarce times.

TO MAKE DR. DARWIN'S POTATO BREAD.

Wash and grate 8 lbs. raw potatoes into cold water, stir it, and when the starch has subsided, mix the starch with 8 lbs of boiled potatoes, knead and bake. This, says the doctor, will make as good bread as that from wheaten flour.

MR. PARMENTIER'S POTATO BREAD.

Mr. Parmentier found, from a variety of experiments, that good bread might be made of equal quantities of flour and potato meal. He also obtained well fermented bread, of a good color and taste, from a mixture of raw potato pulp and wheaten meal, with the addition of yeast and salt.

TO MAKE RICE BREAD.

Boil three-fourths of wheaten flour and one-fourth of rice separately. The rice should be boiled to a pulp, the water squeezed out, the flour incorporated, and the dough then treated in the same manner as that of common bread. Rice gains much more than wheat by baking; 32 oz. of flour and 6 oz. of rice, weighed, when baked 55½ oz. showing a gain of 17½ oz. or nearly 50 per cent. The bread is wholesome, and rice is now as cheap as flour. Rice has been successfully tried, in the same proportion, with barley meal. Nine-tenths flour, and one-tenth rice, made like bread, with the exception of using yeast and salt, produced a finer crust in pastry than flour alone. Rice bread keeps longer moist than pure wheaten bread, and is better the second day than the first. Good flour imbibes one-half its weight of water, without letting it go again; flour of inferior quality does not imbibe so much. Seven pounds of flour will make nine pounds of bread. Half a pound of good rice, steamed in a little more than a quart of water, till it is quite dry and soft, gains two pounds, that is, four-fifths in weight.

TO MAKE PUMPKIN BREAD.

Boil a good pumpkin in water, till it is quite thick, pass it through a sieve, and mix flour so as to make a good dough. This makes an excellent bread. The proportion is increased at least one-fourth, and it keeps good a length of time.

MR. DOSSIE'S DIRECTIONS.

To make *good* bread, take of fine flour six pounds; of water, moderately warm, but not hot, two pints and a half; of liquid yeast, eight spoonsful; and of salt, two ounces. Put a pint of the warm water to the yeast, and mix them well, by beating them together with a whisk. Let the salt be put to the remaining part of the water, and stirred till completely dissolved. Then put both quantities of the fluid gradually to the flour, and knead the mass well, till the whole is properly mixed. The dough must stand four or five hours in a warm place, to rise, and then be baked without delay. When properly managed and baked, the above ingredients will have lost about one pound two ounces in weight, so that the loaf will weigh seven pounds twelve ounces.

FRENCH MODE.

Put a pint of milk to three quarts of water, in winter, scalding hot, in summer, blood warm; add salt, and a pint and a half a good yeast. Pour the yeast into the milk and water, and break in about five ounces of butter. Work it well till it is dissolved. Then beat up two eggs in a basin and stir them in. Mix about a peck and a half of flour with the liquor, and in winter make the dough pretty stiff, but more slack in summer; mix it well, and the less it is worked the better. Let it lie to rise while the oven is heating. When the loaves have lain in a quick oven about a quarter of an hour, turn them on the other side for about a quarter of an hour longer.

Wheat and Indian, *rye and Indian*, and *wheat and rye bread*, are made in the ordinary way. The New-England *rye and Indian*, generally contains one part of rye and two of Indian. The other mixtures may be varied at pleasure. Bread containing Indian meal requires a hotter oven, and is longer in baking, than other bread.

GROWN WHEAT,

According to Davy, is apt to contain a small quantity of prussic acid, highly deleterious. He directs to dry the grain in an oven; this stops the progress of germination. With flour made of such damaged wheat, mix one-half of good sound flour; and for each pound of the damaged flour, mix from 30 to 40 grains of the common carbonate of magnesia, i. e. uncalcined magnesia. A like quantity of common whiting may be substituted, 30 or 40 grains, for the magnesia; or for want of both, 25 grains of pot or pearlash, or a tea-spoonful of strong ley.

Dyspeptic Bread is made from flour not bolted, containing the bran, in the ordinary way.

GENERAL REMARKS.

New baked bread contains a large portion of indigestible paste, which may be rendered less unwholesome by allowing it to stand a day, or by toasting it. Stale bread, in every respect, deserves the preference to that which is newly baked; and persons troubled with flatulency, cramp of the stomach or indigestion, should abstain from new bread, and particularly from hot rolls.—*Willich.*

RUSSIAN MODE OF MAKING BUTTER.

The milk is simmered fifteen minutes over the fire, when it comes from the cow, and then churned. This process produces butter immediately, and in quantity far superior to that made in the ordinary way, from milk that has undergone vinous fermentation; and in addition to its superior flavor, it will preserve its qualities much longer. Another advantage is, that the milk being left sweet, is possessed of almost the same value for ordinary purposes, and more healthy, as the scalding destroys whatever animalculæ it might have contained. In winter, place the milk vessel in a kettle of scalding water.—*McKenzie.*

The Italian Spring Wheat, has received high commendation from N. Jersey, Pennsylvania, Maryland, and Virginia, and wherever it has been sent, and is increasing in demand. This fact affords the best demonstration of the utility of agricultural journals. This wheat is of very recent introduction, and was first publicly noticed about a year ago in the Cultivator, in a letter from Mr. Hathaway to the Conductor. Six months has served to introduce it into the middle and some of the northern states; and it has every where been found to be a valuable accession to our farm products. We state, for the benefit of those who are anxious to purchase seed, that it may be had of John Johnson & Son, commission merchants, No. 2 South-street, New-York, or on application to Ph. Van Rensselaer, Cultivator Office, Albany.

A new use for Apples.—That apples will fatten pigs, cattle and children, has got to be an old story. It is now known that they will fatten poultry. Geese and ducks feed upon them, with avidity, when broken, and dung hill fowls also, and will peck and eat the mellow apples which fall from the tree. We have several kinds of early apples which the fowls attack as soon as they fall, and our ducks swallow our Siberian crabs entire. Now if apples will make pork and beef, and thousands can attest to this fact, why will they not make fat the goose, the duck and the chicken? All that is required is that they should be mellow or broken, or perhaps it would be better to have them boiled.

ADDRESS,

DELIVERED BEFORE THE BERKSHIRE AGRICULTURAL SOCIETY, AT THEIR TWENTY-SEVENTH ANNIVERSARY, OCTOBER 5, 1837,

BY J. BUEL.

Mr. President and Gentlemen of the Society:

In compliance with your invitation, I propose to offer to this assembly some remarks on the duties which devolve upon the farmer; and to discuss some of the prominent means by which those duties may be usefully and profitably performed.

Providence has imposed upon all, the obligation of providing for the wants and comforts of themselves and their households. These wants and comforts are not limited to mere food and clothing: they embrace the mind and the habits of life—intelligence, industry, frugality, benevolence. The lively exercise of these virtues, if not always necessary to prevent want, are the surest means of promoting comfort, and of securing to our children the substantial enjoyments of life.

Though there are many ways and devices by which men endeavor to obtain wealth and happiness, there are few employments in which these are attained with so much certainty, or which are more conducive to health, to usefulness and manly independence—few which apparently better fulfil the beneficent designs of the Creator—than that assigned to our first parents—the cultivation of the earth. It has, to be sure, like all other avocations, its cares and its toils—its thorns—yet the wise and the good, engaged in its pursuits, seldom fail to draw from these, lessons of wholesome instruction:—to them, every thorn has its rose. Nor does farming afford that prospect of rapid gain, which some other employments offer to our cupidity; yet neither does it, on the other hand, involve the risks, to fortune and to morals, with which the schemers and speculators of the day are ever environed. It offers a sure and substantial source of gain and of usefulness, far better for the individual and the community, than fortunes made in a day, and lost in a night—made by trick, and dissipated by folly. Rural life is exempt from a crowd of evils, of rivalships and jealousies, which often cloud and embitter the lives of men in other professions.

"The husbandman should hate no one, for he should dread no rivals. If his neighbor's field is more productive than his own, he borrows a useful lesson." If his own field is the most productive, he has the satisfaction of knowing that he is teaching and benefitting his neighbor by his example. He learns to consider his own welfare as intimately identified with the prosperity of all around him. A gentleman highly distinguished for fortune, talents and usefulness—who participated largely in the honors and duties of public life, and who, by his example in rural improvement, and his writings, mainly contributed to raise the agricultural character of his district to a state of perfection excelling that of any other district in the Union—I allude to the late Chancellor Livingston—has said, with much truth, that "If happiness is to be found upon earth, it must certainly be sought in the indulgence of those benign emotions" which are the reward of rural cares and rural labors. "As Cicero," he continues, "sums up all human knowledge in the character of a perfect orator, so we might, with much more propriety, claim every virtue, and embrace every science, when we draw that of an accomplished farmer. He is the legislator of an extensive family, and not only men, but the brute creation, are subject to his laws. He is the magistrate who expounds and carries these laws into execution. He is the physician who heals their wounds, and cures the diseases of his various patients. He is the divine, who studies and enforces the precepts of reason. And he is the grand almoner of the Creator, who is continually dispensing his bounties, not only to his fellow mortals, but to the fowls of the air, and the beasts of the field."

With a conviction of these truths upon his mind, no farmer should repine at his lot, or envy the specious or substantial prosperity of his neighbor; but aim contentedly to fulfil with fidelity, the high duties imposed upon him as a cultivator of the soil.

The condition of the agriculturist imposes upon him other duties than those which regard the welfare of his household. He is to provide for the subsistence of the great national family. Most of the necessaries of civilized life are drawn from the soil, the supervision and management of which he has taken upon himself. Our population is divided into professions and trades, to each of which belong particular offices; and the welfare of the whole depends upon each fulfilling, with fidelity, its respective relative duties. A mutual dependence and obligation exists among the various classes, which can neither be neglected or slighted by one class, without serious detriment to the whole. The obligation is particularly mandatory upon the tiller of the soil; for, upon his labors, the other classes mainly depend, for many of the absolute necessaries of civilized life. If the farmer is industrious and intelligent—for intelligence serves greatly to abridge labor, and to multiply its products and its profits—the bounties of the soil, with the blessings of Providence, will be abundant, and plenty will spring up in every corner of the land. But the soil will withhold its treasures in proportion as ignorance prevails, or as rural labor relaxes its efforts, and the consequent suffering is felt, with the certainty and force of an electric shock, through the whole social circle.—We want nothing but the melancholy experience of the last year to persuade us of this truth.

Society is dependent upon the farmer, not only for the necessaries, but indirectly for many of the refinements of life. Agriculture furnishes most of the labor which creates our wealth; it provides most of the raw materials for the manufacturing arts; it freights the bark of commerce; and, by receiving in exchange the fabrics of the one, and the commodities of the other, it sustains and enriches both.

He who does not appreciate his social obligations, or knowing, neglects to fulfil them, and lives only for himself, perverts his noblest faculties, and lives and dies a stranger to the best feelings which dignify human nature.

Our agriculturists are also specially charged with the guardianship of our freedom. They constitute the fountains of political power, and are the conservators of the whig principles which made us an independent nation. If the fountains are impure, the stream of power will be defiled and corrupt. The farmers compose the great body of our population, and must ever, while we remain a free people, control the destinies of the republic, and give the impress to our national character Their republican and independent bearing—their sober good sense, unostentatious habits, and love of order, must protect us alike from the wily encroachments of ambition, the enervating and corrupting influence of wealth, and the tumult and violence of the mob. They are to a free state, what the main spring is to the watch—the great moving and regulating power. Rome remained free while her middling classes retained a controlling influence in her public affairs, and she sunk to despotism, in proportion as this barrier between her patricians and her plebeians, was broken down and destroyed. "The corruption of Rome began," says Sismondi, "from the time that the middle class ceased to impress its own peculiar character on the whole nation; this corruption increased in proportion as the intermediate ranks disappeared; it was carried to its highest pitch, when the whole empire consisted of men of enormous wealth and populace. It is in fact," he continues to remark, "in the middle classes, that the domestic virtues—economy, forethought, and the spirit of association—mainly reside. It is in them, that a certain degree of energy is incessantly called into operation, either as a means of rising, or of keeping the position already acquired. It is in them alone that the sentiment of social equality, on which all justice is based, can be kept alive. Grandeur isolates a man; vast opulence accustoms each individual to look upon himself as a distinct power. He feels that he can exist independently of his country; that his elevation, or his fall, may be distinct; and, ere long the servile dependents by whom a man who spends as much as a petty state, is sure to be surrounded, succeed in persuading him, that his pleasures, his pains, nay, his slightest caprices, are more important than the thousands of families, whose means of subsistence he engrosses."

In view of the high duties and responsibilities which devolve upon the farmer, as a parent, a tiller of the soil, and a watchman on the citadel of freedom, it becomes us to inquire, what are the best means of enabling him to act well his part on the theatre of life, in the several capacities that have been enumerated.

The duties of a parent to his children may be comprised in a brief sentence:—teach them what good men in every age, as well as divine inspiration, have defined to be the cardinal virtues—LOVE TO GOD AND GOOD WILL TO MAN—teach them to be industrious, to be frugal, to be temperate, to be humble, to be honest, to be kind hearted—and TEACH THEM BY EXAMPLE.

Health is among the first blessings of life, and the prudent man will always endeavor to secure it for himself and his family. This may be promoted by many little attentions which some do not know how to value, and which others, knowing, shamefully disregard.

Temperance, in all our animal indulgences, as well as in our passions, is particularly promotive of health. The human frame is so delicately and wonderfully made, that any excess or violence which may impair the functions of one part, may cause irremediable injury to the whole system.

The air we breathe, though essential to life, becomes vitiated, and prejudicial to health, by respiration, by putrifying vegetable and animal matters, by stagnant waters, and by a state of rest. Hence our dwellings should be located in dry and healthy situations, our apartments should be roomy, kept in a cleanly order, and frequently aired; every species of putrifying substance should be removed from our house-yards and cellars, and the latter kept dry, by drains, if necessary, and often ventilated.

The offices of the skin are all important to health. Lavossier has shown, that upon the lowest estimate, the skin is endowed with the important charge of removing from the system, by the process of insensible perspiration, about twenty ounces of waste matter in every twenty-four hours, while the maximum has been found to amount to five pounds a day. These excretions are greater in amount, Dr. Combe adds, than the united excretions of the bowels and kidneys. These facts admonish us, that if the functions of the skin become suspended, by a disregard to cleanliness, by too great indulgence in sedentary habits, by exposure to sudden transitions of temperature, or other causes, and the impurities which are ordinarily thrown off by this channel, are suffered to remain and accumulate in the system, health must be impaired, and life endangered. So important is a clean skin considered in the economy of health, that frequent ablutions have been enjoined as a religious duty among many eastern nations. A like attention, among us, to keep in wholesome exercise, the important functions of the skin, cannot fail of being highly conducive to health.

Vegetation purifies the air, and health, as well as beauty and comfort, are essentially promoted, by surrounding our dwellings with fruit and shade trees, and ornamental plants. The splendid elm which stands on yonder common, is alike the ornament and pride of the town. What a lesson of instruction does this afford! Every man may plant an elm and a maple—an apple tree and a vine—a lilac and a rose-bush, in a leisure hour, and may live to enjoy their shade, their fruit, and their fragrance; or should Providence otherwise ordain, may leave them as a grateful inheritance to his posterity. Our fathers planted for us, and we should requite the obligation, by planting for our children.

Most of the diseases which afflict our species, may be traced to impure air, obstructed perspiration, or intemperate indulgences.

Another source of high, but rational gratification to the farmer, is the garden. This may be made to administer largely to the variety of his viands, the subsistence and health of his family, and the recreation and improvement of the mind, without materially abstracting from the labors of the farm. So strong is my conviction of the economy and salutary influence of a well cultivated garden, that, when I chance to see one in travelling abroad, I involuntarily ascribe to its occupants, economy, good taste and domestic enjoyment.

The best preventive of gossip and tale bearing, the common recreation of the idle and the ignorant, and the bane of those good feelings and kind offices which sweeten and augment the pleasures of good neighborhood, is to inculcate, in early life, a taste for useful reading. Books remind us of our duties, instruct us in our business, and afford useful employment and recreation for the mind in hours of rest or of leisure; and when the habit of reading is once acquired, its pleasures and advantages become more and more perceptible and enticing, as we advance in useful knowledge. Those who employ their time in their own business, seldom find leisure or disposition officiously to intermeddle in the private concerns of their neighbors. But the mind is as liable to disease as the body, and a diseased mind is far more prejudicial to character and usefulness, than a sickly body. Evil communications corrupt good manners; and bad books, or useless books, are as injurious to the mind and manners, as bad companions are, or as impure air, or obstructed perspiration are to the body. The adage teaches, that a man is known by the company he keeps, and the maxim is true, applied to books as well as men.

Having discussed the affairs of the family, let us go now to the farm:—For after all, our capacity for providing suitably for ourselves and families, and of becoming useful to others, will depend, in no small measure, upon the extent of our pecuniary means, and these means are to be acquired by the profits of our labors upon the farm.

I would premise in the outset, that the business of agriculture has not kept pace with the other useful arts, in the march of improvement, and that it requires all our exertion and enterprise to overtake the spirit of the age. In the other arts of productive labor, the improvements of the last fifty years have been greater in amount than during the preceding century. No man prospers in the mechanic or manufacturing arts, at this day, who treads in the footsteps of his ancestors. By reason of the application of science, and the multiplication and great improvement of labour saving machines, old practices have been superseded by new and better ones—all has there been changed—all improved. A useful discovery in those arts is no sooner made in one country, or in one district, than a knowledge of it is disseminated, by means of the press, through every civilized land, almost with the rapidity of the wind, and it becomes known and adopted wherever it can be useful. But in husbandry, the case has been different. We have, to a ruinous extent, in many parts of the country, persevered in the practices of our fathers, which, though adapted to their time, and the circumstances of a newly settled country, are illy suited to an exhausted soil, or to the present age of improvement. We, too, must call science and the press to our aid, if we would successfully compete in the business of farming, with the well cultivated countries of the old continent, or the highly improved districts of the new one. The agriculture of England has doubled its products in the last sixty years, and the agricultural productions of Scotland, have been more than quadrupled in the same period. In France, men of profound science, have successfully devoted their talents to the improvement of the soil, and the government has efficiently aided their efforts, by the establishment of schools of practical and scientific instruction in husbandry, and by pecuniary aids to her agricultural societies. There, the soil has been improving under the *new* system of husbandry: here, the soil has been deteriorating under the *old* system. The lands of Flanders have been preserved in unimpaired fertility six centuries, and those of China, for more than two thousand years Providence has provided for us too abundant means for perpetuating the fertility of our soils, and has endowed us with capacities of applying them to advantage. We have received the talent. If we hide it, or do not put it at interest, the master will assuredly take from us that which we have, and give it to him who has already much. But the spirit of agricultural improvement *is* abroad in our land. The young farmer, in particular, feels its vivifying influence. It has already done much, and with the aid of agricultural societies, and of agricultural periodicals, which are increasing in numbers and usefulness, its benign influence will soon be manifest in every department of husbandry, and in every section of our country. We have the strength and enterprise of a young nation; and we possess advantages, and enjoy privileges, unknown to any other agricultural people upon the globe. It becomes us, then, to call promptly to our aid, the lights of science, and the diffusive influence of the press, that we may realize the high destinies seemingly allotted to us by a kind Providence.

Allow me to make a farther digression, to speak of a means of improving our husbandry, which is too much neglected, and too often contemned and ridiculed. I allude to what is sometimes, in derision, termed *Book Farming*, but which in reality offers the most substantial facilities to improvement, and the acquisition of wealth. Let us inquire what this book farming is.

A German, by means of study and observation, aided by a long course of practical experience in husbandry, has been able to ascertain the degree of exhaustion in fertility, which soils ordinarily undergo, from the growth of common grain crops—and how much their fertility is increased by given quantities of manure, and by pasture—thus teaching how to maintain, or to increase, the fertility of the soil, and consequently its products and its profits, from the resources of the farm.

Other men have been assiduously engaged for years, in studying, and have satisfactorily ascertained, the laws by which heat, air and water, are made to exert their best agency in preparing the food, and accelerating the growth and maturity of plants—and have published directions how to derive the highest advantage from these primary agents of nutrition.

And others have invented new and improved implements and machinery, calculated to relieve agricultural labor of half its toils.

A farmer in Ohio, raises fifteen hundred bushels of Swedish turneps on an acre of ground, enough to feed and fatten ten bullocks seventy-five days. A farmer in Massachusetts, by a new mode of managing his corn crop, has realized a nett profit of $150, on little more than an acre of land, while his neighbors, in the same season, and in adjoining fields, have not been remunerated, in their crop, for the expense of culture. A farmer in New-York, has proved by experiment, that by a new process of making hay, he can save ten per cent in weight, something in labor, and other ten per cent in the quality of his forage. Another farmer of my acquaintance, has cultivated twenty acres of Indian corn, and eight acres of beans the present season;—the former, estimated to average forty bushels the acre, and the latter giving more than an ordinary yield—without employing a plough, or a hand hoe, in the planting or culture—the whole work having been performed with the drill barrow and cultivator, implements of modern introduction, thus economising from one-half to two-thirds of the labor ordinarily bestowed.

These are all matters of recent record, but as they happen to be *printed*, they very properly fall under the denomination of *Book Farming*.—But are they, on this account, less true, or is the information they contain less useful in your practice? If a neighbor makes a palpable improvement, by which he doubles the value of his labor, you readily avail yourselves of his discovery, though you do it by stealth. Through the means of agricultural publications, the entire farming community stand in the relation to you of neighbors—you become acquainted with all their improvements, and are enabled to profit by their skill and science. I might detain you for hours with details of improvements in husbandry, which are essential and accessible to the farmer. Hundreds of men of profound science, and thousands of the best practical farmers, in this and other countries, are engaged in improving agriculture—in making two, three and four blades of grass, and two, three and four bushels of grain grow, where but one blade, or one bushel, grew before; and they are tendering you the benefits of their labors, in the agricultural works of the day. The accumulated experience, and the improvements of centuries, have been registered by the press, and their benefits are tendered to all who will read and profit by them, almost without money and without price. He that will read, may learn.—*(To be continued.)*

NOTICES OF CORRESPONDENCE.

☞ The request of the Secretary of the Home District Agricultural Society, would have been attended to with pleasure, had the notice reached us in time for our October number.

Whitney's Stump Extractor, has been extensively used, we understand, in Washington and Saratoga counties, and highly approved. The price at Troy or Albany is $200—address S. Potter, Waterford, N. Y. The machine requires two yoke of oxen, one to move it and the other to draw the stump, and four men. It extracts green as well as dry stumps, no other digging being required than may be necessary to attach the chain to a root. It will extract from 20 to 100 stumps in a day, according to their size and condition.

Black Barley, &c.—We have received from J. Hamilton, of Newark, N. J. samples of black barley and southern corn, both handsome grain.

Buckthorn.—Our Winchester, Ct. "patron" is informed, that the Buckthorn, for hedges, may be had of J. Hersy Derby, Esq. of Salem, Mass. at $4 per 100, and perhaps at some of the Boston nurseries. A few plants may be had at the Albany Nursery.

Leicester Sheep.—Our Vermont correspondent A. will find notices of these sheep in the Cultivator—of their price and hardness.

Threshing Machines.—We are inquired of, by A. Gugy, Esq. of Quebec, and Enoch George, Esq. of Saddler's Cross Roads, Md. as to the relative value of the Threshing Machines which have been described in the Cultivator. We have spoken of those we have seen in operation with freedom, and we must refer to our paper for our opinions; yet it would be invidious, and an office for which we do not feel qualified, to pronounce definitively which is the best. And it is well to remark here, that a threshing machine, and a horse power to propel it, are distinct articles, and that they are sold separate. Indeed, the horse power will soon, in our opinion, be made subservient to all the stationary purposes of the farm; and we expect, ere long, to lay before our readers, drawings and a description of a stationary horse power, which performs more than a dozen farm operations, and among other, threshes, cleans and grinds the grain, bolts the flour, and cuts the straw, *without the aid of any manual power*, after the grain is delivered to the threshing machine. There are at present no threshing machines made, or on sale, at Albany. We cannot answer Mr. George in regard to *Van Bergen's Cultivator*, further than to say, that they are for sale by W. Thorburn, of this city, and that he sends them to order.

The Sodom Apple Plant, described by Isaac Gibbs, as a pest on the farm, is wholly unknown to us. It is *not* the Canada thistle.

He who kindly shows the right way to a person who has gone astray, is like a man who lights another's candle by his own, which, although it has imparted light to the other. still continues to show him light—its own effulgence being undiminished.

Liberality consists less in giving profusely, than in giving judiciously.—*La Bruyere.*

The discovery of what is true, and the practice of that which is good, are the two most important objects of philosophy.—*Fr.*

CORRESPONDENCE.

LINCOLNSHIRE AND BAKEWELL SHEEP.

Carmel, September 30th, 1837.

Judge Buel—Sir—I wish to tender you my thanks for the favorable notice you have been pleased to take, of my former communications, respecting my Lincolnshire sheep, and believing that things of this nature are both interesting and acceptable to you, I will now give you the weight of wool sheared from these sheep, last spring, and also the weight of carcass of several yearling bucks, which I weighed in the presence of several gentlemen, about three weeks since. I find, by reference to my memorandum book, their weight of fleeces as follows:—

16 imported Lincolnshire ewes, ...	109 lbs.
1 do do 2 years old, buck,......	10
1 do do 4 years old, buck,......	8
1 Bakewell or Leicester buck,.................	6
15 Lincoln wether lambs, cross or half bloods,....	101
25 Lincoln ewe do do do	153
6 Lincoln buck do do do	42
—	——
65 sheep of the Lincolns, gave total wool,.......	427 lbs.

Thus giving a fraction over 6 lbs. 9 oz. per head. That you may contrast the difference between my Lincolns, and my other improved sheep, Bakewell and Leicester, and kept in the same manner, which is as follows:—70 ewes, including 6 common or native sheep, 265 lbs. which is a fraction over 3 lbs. 12 oz. per head, giving a difference in favor of Lincolns, of 2 lbs. 13 oz. on the general average per head, besides a better carcass, and a much more hardy constitution.

The weight of yearling bucks, is as follows:—

No. 1,....	188 lbs.	No. 3,....	180 lbs.	No. 5,....	156 lbs.
No. 2,....	186 lbs.	No. 4,....	166 lbs.	No. 6,....	152 lbs.

It is proper to remark, that these bucks have been kept only with a view to their thrifty growth, and not to lay on flesh, by extra feeding with grain of any kind. I think that a number of these sheep, *grown to maturity*, say at three years old, will give 300 lbs. at least in carcass alive.

I have thirteen increase this year, from my full blood Lincolns, which promise to be equal with their originals. The time for sale of bucks has but just commenced; I have already sold several, lambs only, and the prospect seems fair at present, to dispose of all I have to part with this season.

Yours, &c.

LEONARD D. CLIFT.

P. S. Please address Somers Post-Office, Westchester county.

BEANS AND BUCKWHEAT.

Lake County, Ia. 9th Oct. 1837.

J. Buel, Esq.—Dear Sir—The following simple and easy method of saving a crop of *beans*, is worth the price of ten years' subscription to the Cultivator, to every person that never practised it, who wishes to cultivate that valuable crop. By this method, beans may be planted in a field by themselves, may be pulled while the vines are entirely green; and will be perfectly cured, no matter how wet the weather; and what is more, need not be housed or thrashed until such time as may be convenient.—This is the plan

TO CURE BEANS.

Take poles or stakes, (common fence stakes,) into your bean field, and set them stiff in the ground, at convenient distances apart, which experience will soon show you, and put a few sticks or stones around for a bottom, and then, as you pull an arm-full, take them to the stakes, and lay them around, *the roots always to the stake*, as high as you can reach, and tie the top course with a string or a little straw, to prevent them from being blown off, and you never will complain again, "that you cannot raise beans, because they are so troublesome to save." They are the easiest crop ever raised, to take care of. Try it, and you will then know it, and thank me for telling you of it.

Your friend,

SOLON ROBINSON.

N. B. Buckwheat is the best grain that grows, to keep through the winter in a stack. It's all a notion that it must be thrashed as soon as dry. Stack it—try it—it will keep.

Wellsboro, Tioga co. Pa. Oct. 6th, 1837.

J. Buel, Esq.—Dear Sir,—I want to say a word upon your article on the manufacture of potato bread, which I perceive, if I do not say at once, must be omitted, which is, that you have not mentioned what I conceive to be of great importance, that *it will make grown wheat make light bread.* It being an unfavorable season for harvesting, my small crop of wheat was injured by growing in the shock; we had some ground, and the bread was heavy and clammy, as is usual with such flour. The next baking my wife mixed in a quantity of well mashed potatoes, the bread was as light as a puff-ball, as white as snow, and deliciously sweet. She tried again without the potatoes, and again we had heavy bread; it would not rise; and again with the potatoes with the same result as at first. The kind of potato we used was the pink eye, which is the most dry and mealy potato we are acquainted with. This, if not already known, may be worth offering to the public, but I could wish you would try it in your own family first.

I want, if I have room, to say a word in controversion of your opinion, "that not even garden vegetables will thrive well many years together on the same ground." I believe I had one side of my garden (which, on account of its being a little more gravelly than the other, was not so well adapted to roots,) in cabbage for eight or ten years, without any sensible diminution in quantity or quality; but then it was manured every year. I may say the same thing too of potatoes. I suppose a piece of ground adjoining my house, very convenient for early potatoes for family use, has had potatoes on for seven out of the last ten years; but alway manured. And it is a standing maxim among our New-England settlers, which my own experience has verified, that the longer you sow or plant onions on the same ground the better crops you get; and I never could get good onions till I adopted their rule. Finding that in the garden I failed oftener than otherwise about eight years ago, I ploughed up and fenced in a slight manner, so that I could take away the fence for ploughing, a small spot of loamy land, perhaps two rod square, and appropriated it entirely to onions. It was two or three years before I got a regular crop; it now scarcely ever fails bringing, I should suppose at least, half as many more onions as we could expect of potatoes off the same ground; but then it is always kept up with one load of short manure every year.

I will only add then, that I feel the most sincere desires for the success of your most useful and ably conducted publication.

Respecfully yours, WM. BACHE, P. M.

Remark.—There is no general rule without exceptions, and that which rigidly exacts an annual change of crops is of this description. The soil may so abound in the specific food of a species of plant, that it will yield a crop for years in succession, without deterioration. Thus, wheat has been grown twenty-two years in succession in Cayuga, and in other districts; oats and grass for many years in the south part of Erie, in Chautauque; and onions for like periods in Weathersfield. Yet these exceptions do not impair the correctness of the general rule, that the alternation of all crops is favorable to the profits of husbandry. *Our* onions deteriorate the second, and still more the third year, when repeated on the same ground, although highly manured —*Conductor.*

EARLY MAY WHEAT.

Bremo, Fluvanna Co. Va. Oct. 10, 1837.

Sir—In the early part of my agricultural life, I was incredulous as to the necessity of a change of seed, in order to ensure the greatest degree of productiveness in tillage—subsequent experience has convinced me of my error.

Of late years, in this part of Virginia, we have seen some of our favorite kinds of wheat go almost entirely out of use, from gradual and successive failures—while other kinds of inferior quality have taken place of them, in consequence of their superior productiveness, attributable to no other cause, as far as we can see, but having been produced in different soils and other climes.

The early May white wheat of Virginia, which first gave superior character to our flour—and the Mexican wheat, very similar to the early May white, are now rarely heard of amongst our agriculturists. Not doubting that these varieties would be very valuable in any quarter of the wheat raising region of our country where they would be new—and being anxious for the general interest of agriculture, that they should not be lost—as doubtless, after some years acclimating in New-York, they may again be returned advantageously to the south—I have been at some pains to procure a barrel of the first mentioned kind—which I have sent, through Messrs. Peyton, Deane and Edwards, of Richmond, who will forward it through their friends in the city of New-York, John Wilson & Co. to you at Albany. By putting it into the hands of some of your careful farmers I am persuarded they will find it a valuable acquisition. The specimen sent has an appearance of being yellow or red wheat rather than white, but this is owing to its having been raised for a succession of years on red land—upon grey soils it would soon return to its native whiteness—and for the beautiful whiteness, and large proportion of superfine flour to the quantity of grain, we have never found any wheat to equal the early white May until our soils became tired of it.

A few years ago I sent an equal parcel of the Mexican wheat to General Stephen Van Rensselear, with the same object of preserving a valuable variety of the great staple of agriculture. I should be glad to learn that it has been preserved in the hands of your enterprising farmers around Albany.

The early May wheat will do well sown any time in October, or on very rich land in November. In short, I think it not improbable it would succeed with you as a spring wheat sown in February or March, fully as well as the Florence.

Yours with high regard and esteem

JOHN H. COCKE.

☞ We thank our highly respectable correspondent for the interest he takes in the improvement of the agriculture of our country—of our *whole* country. When the wheat arrives, it will be freely divided with any of our careful brother farmers, who are disposed to give it a fair trial. We have experienced palpable benefits from the change of seed, although we are careful to save the best from our own crop; and the remark applies to fruits as well as to grains and roots. Varieties of the apple and pear, after they have become old and deteriorated in their original district, have been found to renew their healthfulness and vigor on being transferred to a new soil or a new climate. This has been the case with the famed golden pippin of England, the no less famed Spitzenbergh of our neighborhood, and to the Vergaleu or St. Michael's pear. The interchanges of seeds and fruits, between agricultural societies and individuals, should be encouraged, and may result in the highest public benefits.—*Conductor.*

LIVE FENCES.

Willoughby, Ohio, October 15, 1837.

Sir—In your paper this month, you draw attention to a most important subject, the raising of LIVE FENCES; and you invite those who have had experience in this country, in cultivating hedges, to furnish you with facts.

Two years ago, when I first came here, there was an abundant crop of berries on the wild thorns of the country, and I plucked nearly a bushel for seed. These were sown in the spring of 1836; but none of them vegetated that season. and only a few plants have yet appeared. The fault was in want of due preparation by rotting; and you would do well to instruct your readers as to the best mode of effecting this. In Scotland I have seen the berries of white thorn buried in large heaps during winter, sown in spring, and come up the same season abundantly.

You say that after a trial of seven years you have been obliged to give up the European quick set thorn, and substitute native plants, as better adapted to the climate north of latitude 42°—will you be so good as to say in what they were deficient, as several friends of mine in Ohio, have imported plants from England, which, with several years growth are promising well.

Observing the English sweet brier growing luxuriantly in the door-yards of several neighbors here, I gathered some handfuls of the berries twelve months ago, rubbed out the seed in dry sand, and, thus separated, sowed the whole in a hedgerow, which came up in May, and now averages a foot in height. This plant I am convinced may be rendered extensively useful in fencing, either alone or mixed with thorn, locust, &c.; these giving strength to the hedge, while the sweet brier thickens it at bottom. The growth is so rapid that in three years this plant will be six or eight feet high; and if, on a bank, between ditches, two feet deep, or strengthened with a rail supported on posts seven or eight feet apart, will be a tolerable fence. Trial can easily be made in and around gardens; and there, the fragrance of the foliage, with the beauty of the flowers and berries, will alone compensate any trouble or expense. Yours, &c.

ROB. F. GOURLAY.

Remarks.—We have found no difficulty in growing the haws or seed of the English white thorn; but the seeds of the native crataegus, indigenous in the north, grow badly, and a great portion of them do not grow at all, the haws being abortive, or not well matured. The English white thorn does not succeed, by reason of our dry and hot summers and cold winters—its *natural* climate being humid, and not subject to our extremes of either heat or cold. The sweet brier grows freely from seeds; but the question is yet to be decided whether it will thrive in hedge with the thorn or other hedge plants, it not being strong enough for a hedge of itself.—*Conductor.*

SIOUX, BADEN AND DUTTON CORN—EXPERIMENTS—ITALIAN WHEAT, &c.

Cedar Creek, Plainfield, N. J., 6th Oct. 1837.

J. Buel Esq.—My Dear Sir.—I am desirous to obtain grass seed free from noxious weeds, commonly called in Connecticut, *spear* or *English grass.* It is indigenous, common to all N. England, esteemed by many, as forming the best pastures, and making the best quality of hay, in distinction from clover, timothy, &c., but I do not know the botanical name. I have supposed it was "poa pratensis,"[*] and have once ordered it, which proved, on sowing, to be blue grass. Will you be so kind as to direct me, if you understand my wishes? The native grasses here resembling it are of two kinds, one a medium in appearance between N. E. spear grass and red top, the other dwarfish, with a more wide spread top. I have never seen any thing in this vicinity exactly corresponding with Connecticut spear grass. By my remarks you will understand that I am a full blooded Yankee: I have, therefore, a privilege of asking questions: Can you inform me what is *the cause* of smut on corn? I mean the monstrous fungus, protuberances that sometimes shoot out where the ear should be. I planted last spring about an hundred hills of Sioux corn in my kitchen garden, which grew very large, from eight to nine feet high, and generally set for three, and in some instances for four ears; in no case were there but two good ears to a stalk, the others filled out with smut. I also planted a few hills of Baden, corn; the seed was received from H. L. Ellsworth, Esq. of Washington city. This kind set from three to nine ears on a stalk, but none had more than five sound ears, the others generally filled with smut. The Baden corn has grown to a great size, about fourteen feet in height. I have not yet gathered it, but counted 117 ears that look sound, on about 140 square feet of ground. This, however, is no criterion for a field crop, as the ground was very rich, and I hoed this and Sioux perhaps a dozen times. I doubt not the latter, if it had not been mostly picked for green corn, would have yielded, being planted three feet each way, more than at the rate of an hundred bushels to the acre—some of the ears reserved for seed, were ten to twelve inches long, twelve rowed, well filled, bright yellow. It was fit for use in August, and is a valuable early corn. The Baden corn I think *will not do* for a field crop in this region.

I tried this season about half an acre of Sioux, Dutton and Connecticut corn, each in the field. Neither were as large as the N. Jersey of early planting. The Sioux and Dutton fell but little short in sound corn, The N. J., I judge, is too late, the stalks too large, which exhausts the soil. I am calculating to plant another year about ten acres of Sioux and Dutton. The former is the earliest and largest. I have tried this season the experiment of a few rows, of about forty-five rods in length, in the centre of a field of N. J corn. First with a compound of two-thirds unleached ashes to one-third plaster, a full handful thrown upon the corn when dropped and immediately covered. Second, a shovel full of good barn-yard manure. Then a handful of ashes alone: next a small handful of unmixed plaster: then a handful of slacked lime: and lastly without any kind of manure. The rows are cut up but not yet husked. The land and cultivation were very equal. Where the compound of ashes and plaster was applied the corn through the whole season was visibly best: next to it was where the ashes were applied. The barn-yard manure and plaster stood about equal: where the lime was put it was inferior to that which had no manure of any kind applied to it. The land was a dark brown loam, resting on a tenacious subsoil. I sowed a few acres of wheat last season late, about the middle of October, to avoid the flies. It was much winter killed, and the flies destroyed about half the residue, so that I think we shall not get more than ten to twelve bushels to the acre. In the spring I sowed about two acres of Italian spring wheat It came up well, and looked very promising, until about the middle of May, when it began to wane. When I examined it there was one to nine larvae at work in most of the stalks. I considered that my crop was lost; but as the land was in good heart, sprouts soon shot up from the roots, and notwithstanding many of them were attacked, yet it came forward well, and yielded a fair crop; by estimation from what we have threshed, about twenty bushels to the acre, of plump grain. The question is settled, in my mind, that the fly is *not confined* to the early part of the fall in depositing her eggs. I expect if the experiments were fully made she would be found to be active from early in the spring to late in the fall.

I would take leave respectfully to suggest the propriety of raising the next volume of the Cultivator to one dollar per annum—as it would then be the *cheapest periodical* I am acquainted with. The object of the suggestion is, to give you the benefit of an assistant, that you might have an opportunity for travelling more to make personal observations, and to give to the Cultivator more embellishment. I do not believe that one to twenty of your subscribers would withdraw or object, as we should all get double the value of the extra expense.

I am very respectfully yours, &c.

DAVID L. DODGE.

DUTTON CORN.

Philadelphia, Sept. 23, 1837.

Hon. J. Buel—Dear Sir—Early last spring, you shipped to me, at my request, a box of *Dutton Corn.* I was induced to give it a trial, by the various favorable accounts of it, in the "Cultivator," and the reputation it had otherwise acquired. The result of the trial is accurately stated in the annexed note, and may be relied on. The appearance of the crop in July, so early and so prolific, was gratifying to all who saw it.—The applications for seed are so numerous, that I shall dispose of the whole crop for that purpose.

Very respectfully,

W. L. HIRST.

"I planted the Dutton Corn in a thin orchard, of 2½ acres, preparing the ground by ploughing in the green sward and harrowing; no manure was applied. The seed was steeped, and rolled in tar and ashes, and planted about four and a half feet each way, the first week in May. I used the cultivator twice; on the 4th July, the corn was in silk, and fit for cooking in the first and second weeks of August, but it was suffered to ripen on the stalks, and cut close to the ground early this month. The fodder is very tender and excellent. The yield is about 70 bushels to the acre. The main crop on the farm is the yellow gourd; but the Dutton is far superior: one hill of the Dutton yields more than three or four of the gourd, although the gourd seed was the best that could be procured. The two kinds of corn did not intermix: the fields were remote and the Dutton too early. DAVID BURMAN."

---

[*] This is believed to be the botanical name of the grass described. We have not noticed the seed for sale in any of our seed shops. It may be gathered at maturity, by children, by stripping it from the culm.

"*Blockley Grove, near Philadelphia, Sept.* 16, 1837."

P. S. I trust you will not cease to press on the public, the expediency of generally raising this species of corn: the crop is admirable, and even astonishing: the field, when the corn was nearly ripe, looked as if it was *all ears!* W. L. H.

NOTE.—We plant 3 by 2½ feet, and get 5,808 hills on the acre. Our correspondent planted about 4½ each way, and had but 2,151 hills. Thus we obtain 3,657 hills, or more than 2½ to his one on an acre; and yet he obtained 70 bushels—without manure. We introduce this comparison to explain to incredulous readers the cause of our northern corn crops being sometimes deemed incredibly large. It is, however, to be borne in mind, that our corn is of comparatively dwarf growth, and will bear crowding more than the southern varieties.

We beg here to remark, that there is a *late* twelve rowed corn, which has been mistaken and sold for the Dutton, particularly in Berkshire co. Mass. It grows stouter and taller than the Dutton, and ripens two or three weeks later.—*Cond. Cultivator.*

TOP DRESSING MEADOWS.

J. BUEL, Esq.—Dear Sir—Your Brookline correspondent, in the October number of the 3d volume of the Cultivator, has made a statement to show that top dressing old mowing land is more profitable than an alternation of crops. He says, there may exist a great error in top dressing grass land, and this error should be corrected, as there is much old mowing land in this region, which cannot conveniently be ploughed. I wish him or some other of your Brookline subscribers, would correct this error, for I think the farmers in that town understand that better than in any other town in this state. I wish they would state what kind of manure, and when applied, whether in the spring or fall. L.

Columbia, Ct. September 18, 1837.

PROPOSED IMPROVEMENTS IN LOOMIS' STEAM BOX.

Sheffield, Mass. Sept 20, 1837.

Mr. J BUEL—Sir—Having examined Mr. Nathan Loomis's plan of steaming vegetables, which we think will meet with the approbation of those who are engaged in fattening pork and beef on potatoes, apples, ruta baga, &c. yet we would recommend the additional improvement of a tube, put through the cover of the boiler, with from one to two feet of it above the cover, and extended down as low in the boiler, as will be safe to suffer the water to be boiled without injuring the boiler, which tube will emit steam whenever the water gets below the end of it, and thereby give warning when the boiler needs replenishing with water. This tube will also answer for a conductor, through which the water may be conveyed into the boiler, and a reservoir of water may be placed above the boiler, with a fasset extended directly over the end of the tube, and gaged so as to emit the water down the tube about as fast as it boils away. We would also recommend the addition of a fasset, put through the cover of the boiler, for the purpose of throwing off the water, when the boiler happens to get filled too full. The cover of the boiler may be fitted so as not to leak steam, by nailing two or three strips of cloth around its edge.

The above named tube may be of any convenient bore, from half inch upwards, and should remain open at both ends. It answers the double purpose of safety valve and feeding tube. Upon this plan, a boiler that will hold one pail full, will steam several bushels at a time, and as quick as the same quantity can be boiled in a large kettle.

The steam pipe may be placed at one side of the cover of the boiler, and answer equally as good a purpose as though it were at the centre, but in no instance should the steam pipe be permitted to extend below the under side of the cover. SHERWOOD HAMILTON.

SPOT IN SPRING WHEAT.

J. BUEL, Esq.—Dear Sir—Permit me to address you at this time, with the hope of eliciting some information as to the cause of the failure of our spring wheat crops in this vicinity, this season. I have carefully searched every volume and number of the Cultivator, to find something to the point, but can find nothing, and have come to the conclusion, that the disease which I am about to mention, is unknown to your correspondents, or if known, communications on the subject are withheld, or possibly some small notice has been given in the Cultivator, and escaped my observation. I must confess, that in the culture of spring wheat, I am yet in my noviciate, and as experience is said to be the best schoolmaster, I trust the lesson that many in this vicinity have received from him will in the end prove to our advantage.

The last summer the small quantity that was sown, did so remarkably well, that it induced many to enter deep into its culture this season. The consequence has been, that by some unforeseen events, much time and labor have been thrown away, and the confidence of many of our farmers in its culture severely shaken.

In the first stages of its growth, it was very promising, but when the grain began to form in the ear, it was observed that what is termed at the east, ***blight***, or ***blast***, which is here termed the ***spot***, had taken rank hold of much of it. Its effect upon the ear of wheat seemed to be, to destroy a part of it, or rather to prevent the production of the grain, while on other parts of the same ear, grains of wheat grew, though very inferior in size and appearance. Again, some ears would be entirely destitute, while others did not seem to be affected in the least. The ear and straw of the diseased and that which was not being perfectly bright and free from rust.

The reason of its being called "The Spot," is derived, I suppose, from the fact, that on its first appearance, the spots upon the ear which is diseased appear to be ripe or of a light color, while that part of the ear that contains a berry remains green, thus presenting in fact a very *spotted* appearance.

Owing to the wintry weather crowding itself into the spring months, we were not able to commence ploughing before the middle of April, and those fields which were sown at different times seemed to be affected more or less, according to the time of sowing. Those which were sown from the 15th to the 25th of April, yield about half a crop, (25 to 30 bushels being the ratio of a common crop,) while fields sown eight or ten days later, were not worth harvesting. Again, fields sown two weeks later than either of the last of these, are better than either of the former, although all were affected more or less. I have made many inquiries of the oldest settlers, and have puzzled my ingenuity to find out the cause, and if possible, for the future to guard against it; and the best information I can obtain is, that it was occasioned by some heavy showers while the wheat was in blossom, thereby destroying the first cause of the reproduction of grain in the ear. To me it appears there is room for doubt on that point. True we had some heavy showers about the time it was in blossom, together with some cool damp weather, which united might have been the occasion of it; but if those causes will produce such effects upon spring wheat, why will not the same cause produce similar effects upon winter wheat, oats, and other small grains, and upon fruit trees in their season? The theory is new to me, but may be old to you, but whether new or old, your opinion is respectfully solicited.

But I perceive that I am getting a little prosy, therefore suffer me in conclusion to say that I do not consider it proper to throw away any theory that promises to promote the public good, or individual welfare, however visionary it may be, until it is thoroughly analyzed and divested of all that is objectionable and false. It is not to be expected from the short time that agricultural interests have attracted public attention, that a perfect uniform system can be introduced throughout our Union, nor is it to be desired; different sections require different systems. But the grand principles, as a science, can be scattered through the whole, and when it has once engaged the public mind, there will be no necessity for relying upon foreign aid for our daily bread, or the manner in which it may be obtained systematically. Possessing all the natural prerequisites, it will be a living and eternal shame, if we do not apply the opportunity to these purposes.

Yours with respect,

T. DUDLEY.

Fairfield, Adams co. Ill. Sept. 25, 1837.

REMARKS.—The subject of blight, mildew or rust, is one upon which doubt and darkness still rest. The prevailing opinion is, that it is a parasytic plant, which feeds upon and exhausts, more or less, the juices of the plant destined to nourish and mature the seed. Experience seems to have demonstrated, however, that the rust is most prevalent in rich, moist grounds, and in those having a level surface, and during warm, close and damp weather. Hilly and undulating surfaces, exposed to the influence of the winds, and moderately rich and clean soils, are most exempt from its attacks. We have been recently advised of an efficient preventive being found, in sweeping a rope over the standing grain, in the morning, for a few times, after wheat had attained its growth. The operation is performed by two men carrying each the end of a rope, walking between the ridges, and drawing the rope across the standing grain. It is a work of no great labor. Its efficacy was demonstrated by the fact, that an adjoining piece, not operated upon, was nearly destroyed by the rust, while this entirely escaped injury.—*Conductor.*

KENTUCKY FARMING.

Wilkinson's Cross Roads, Tenn. Sept. 28, 1837.

DEAR SIR—I was up in Kentucky a few weeks ago, and whilst at Frankfort, was pleased to learn that an agricultural paper was about going into publication there, to be conducted by able and qualified managers. I availed myself of the opportunity of subscribing for it, and have duly received all the published numbers. I am pleased with it in all points but one, and perhaps that fault will not long last. The public advertisements of shoe makers, grocers, lawyers, cap merchants, sign painters, and such local matters, should give place to something more agricultural and general in their nature. I hope the subscription list will soon enable the Farmer to exclude every thing but what appertains to agricultural, manufacturing and commercial interests. The paper, I think, will be liberally encouraged.

I was pleased, too, at the high state of cultivation to which they have improved and now conduct their lands in Kentucky. They have not, as we in Tennessee have, been always struggling to make their country what nature never designed it to be. They have practised the adaptation of their soil to the production of those things which nature intended it to produce. Kentucky, in point of scientific and practical husbandry, as regards thinking about how to make the most profit out of the least labor and the least soil, and then doing what they think about, is far, very far, in advance of Tennessee.

Here, the great object of our land holders is to put in as much as they can possibly save from being destroyed by weeds and grass. There, the object seems to be, to improve the land, by judicious management, so as to make each acre yield annually a more abundant harvest than it did the preceding year.

What will be the necessary results of the different courses of tilling and producing you know full well. Our soil will soon be at least stationary in its value, and the owners cease to grow richer. The other state will continue to become richer in soil, richer in science, richer in mind, richer in dollars, richer in every thing. Our state, as a state, is admirably adapted to grass and stock raising, and whilst many, very many admit, and see the Kentuckians annually growing wealthy by raising such stock as we might raise, and driving, too, some hundred of miles further than we should drive, yet such an apathy prevails—so cotton loving are we—that but few will agree to abandon the latter, and try the other.—Some, however, are manfully arousing from their lethargy, and turning their labors to their true interests. I hope the number will grow.

The hospitality of the farmers of Kentucky is unsurpassed by that of any people I have seen, and I have travelled much in the United States. There is an open frankness of manner, a noble, independent sort of familiarity at once evinced towards a stranger, as foreign from the blustering, swearing, dram-drinking, reckless adventuring of the south, as it is from the cool, calculating, cent per cent policy of the north. I was struck, however, with one trait in all the stock raisers I saw, one only excepted. In asking them the price they set on an animal, I never received a direct answer from any but one man. A second, and still oftener, a third inquiry, was always necessary to procure an answer. This custom I dislike very much. It is no difficult thing to tell the price, or decline the sale; I cannot account for this habit.

I was, however, better pleased at the stock fair in Lexington, than at any thing. The form, the perfect symmetry, the splendid, brilliant colors, the size, the milking qualities of some, and the fattening qualities of other cattle, struck me as so far transcending any thing I had conceived of, that I was completely enraptured. Such an exhibition I should like to see in Nashville, but I doubt whether one so superior in every thing, can be presented in America, or Europe even.

By way of showing you the profitableness of the business there, to the country generally, in the stock counties, I will give you, on the authority of Dr. S. D. Martin, of Clarke county, the following statement:—"In ten miles square of that county, in the year 1834, the cattle exported and sold returned to the raisers one hundred and sixty-eight thousand three hundred dollars, besides sixty-eight thousand dollars more for hogs, and the hemp, mule and horse sales, too." One-half of this ten miles square is thickly set with blue grass, and gives a great profit from its luxuriance. Whilst the race horse spirit is high in Kentucky, I was glad to see, that more than a corresponding number of breeders were deeply engaged in rearing, in improving and exporting the slow, but useful mule. Such utilitarians should and do receive good encouragement Whilst the race horse is comparable to the speculator, the idler, and the worthless, and all are mere leeches, the patient and insulted mule, like the farmer, the mechanic, the laborer, is a producer of such things as others but consume. May the producers increase.

Pardon, my dear sir, this long, tedious letter. When I commenced, I only intended to tell you how to dispose of this five dollar bill, and I find I have written out, at a rapid pace, the entire sheet, and have barely room left to assure you that the Cultivator is popular in Rutherford county, is becoming so elsewhere, that I intend some day to contribute to its columns, and that I am respectfully, your obedient servant,

FRED. E. BECTON.

UTILITY OF APPLES FOR FARM STOCK.

Putnam, Ohio, Oct. 7, 1837.

As I have for many years been an advocate for total abstinence from all intoxicating drinks, I feel much solicitude that our farmers should adopt that principle, have therefore concluded to give you some of my experience in feeding apples. I am a mechanic, and live in this village, but have a small fruit yard. In the winter of 1834 and 5 I purchased a pig of a very good farmer, wt. 75 pounds, say three months old, which I kept the next summer in my fruit yard, and fed on the slop of the kitchen, and the milk of one small farrow cow, until the summer sweeting apples became fit to eat, when I shut it out, except once a day we let it in to pick up what we did not want, which practise we continued until fall, when I shut him in a close pen, and commenced giving him corn, but soon found he did not do so well. I then quit giving corn, and gave him what apples he would eat, with common slop, until about two weeks before I killed him, when I gave him corn, under the belief that it would make the pork harder. I killed him the first week in December, being a little over a year old, when he weighed 343 pounds. The gentleman of whom I got him, fed his well on corn through the summer, letting them run out, and in the fall shut them up and fed corn. He had the six best of the same litter, and killed them one week after I did, when his best weighed 200 pounds. He says he gave me the poorest but one, out of nine the sow had, and killed the six best. So you see that I had 143 pounds of pork more than he had from any one of his, and better pork I never saw. I kept some of it a year and a half, as good as at first. I rung my hog in the spring, a practice I have always found advantageous, as I believe it takes one-third less feed than when not rung. I find, if you let your hogs run where there are too many apples, they chew them for the juice, and do not do so well as when fed regularly what they will eat clean.

The same winter I fed a *small farrow* cow on apples, nearly all winter; she had not had a calf for a year; and still we made all the butter we ate in the family, say seven persons, two of them children. If you turn a cow in where she can get too many at first, it will dry her off, as will *bran* or any other feed; but if you begin moderately, and increase until you give what she will eat regularly, there is, I believe, no better food for cows.

If our farmers can be persuaded that feeding apples to their stock is more profitable than making them into cider, one great obstacle to the adoption of the teetotal pledge will be removed, and the wealth of the country increased by the value of the apples so fed.

HORACE NYE.

BOTTS IN HORSES.

Spottsylvania, Va. Sept. 30, 1837.

Mr. Buel,—Dear Sir,—As I know nothing which I can communicate that would more interest the community than a preventive of botts in the horse, I will give a receipt for the same, and the facts upon which it is founded, that you may satisfy yourself of its virtue. It is only necessary to grease a horse when the bott fly is depositing its eggs to prevent that deposite.

My plan has been to use pot-liquor, or in other words, the liquor in which bacon or pork has been boiled, by dipping a piece of woollen cloth into it, and after wringing it slightly, rub the horse well with it, and particularly the parts of the horse upon which the fly usually deposites its eggs, being always careful to have oil enough on your cloth to give a slight coat of it to the hair of the horse, and no bott-fly will touch him. And to prevent the hatching of the eggs after they are deposited, a greater quantity of oil is necessary, though it may be applied in the same way, for grease an egg and it will not hatch, though it must be well greased with some oil that can be easily rubbed off, to prevent the sticking of the hair together, which might otherwise cause it to come off in batts, and leave the horse naked in spots. A bott was taken from the stomach of a horse, and was kept in a snuff-box, which was filled each day with fresh horse dung, until the bott had changed to the crysalis state, when it was left in the dung, and in a short time it came out the perfect bott-fly. Thus proving that the fly is produced by the bott. And now to prove that the greasing the egg will prevent its hatching. Spit in your hand and put two or three eggs from the horse in it, then press your hands together, so as to exclude the light, and you will find that they will hatch in less than two hours. Then grease the same number of eggs, and if you can hatch them, I know nothing about it. Now these are experiments that can be easily tried, by you or any of your neighbors, and I hope you will try some, and give to the world the result.

Yours truly, JAMES HART.

CHURNING.

There is sometimes considerable difficulty in making butter from cream, owing perhaps to causes not exactly understood; and every dairy woman knows that cases occur in which the manufacture of a good article is impracticable. A friend assures us that in ordinary cases the difficulty is at once removed, and butter of a good quality procured, by the addition of a little *sal aratus* to the cream. We have since tried it when cream proved refractory, and found it to succeed admirably. A spoonful of sal aratus, pulverised, is a sufficient dose for two gallons of cream. After the cream has been churned a proper time, if no signs of butter appear, sprinkle the powered sal aratus over the surface, half at a time, as it is possible no more than half may be required. After churning a few minutes longer, if necessary, add the remainder. The philosophy of the matter, we take to be this;—the alkali of the sal aratus neutralizes the superabundant acid of the cream, and thus produces butter.—*Genesee Farmer.*

EXTRACTS.

DRAINING.

We consider this branch of agricultural improvement all essential to good husbandry; and having experienced great benefit from it in our own practice, though performed, we confess, in an awkward way, we are confident we cannot do a more important service to the readers of the Cultivator, than by laying before them the following practical directions for draining, by **George Stephens**, who has spent a great portion of his life in directing and managing these operations, and who appears to understand perfectly the principles upon which they can alone be successfully conducted.

The Agricultural Society at Orebro, in Sweden, anxious to introduce without delay, Elkington's system of draining into that kingdom, procured Mr. Stephens, in 1806, to practice and teach it, at an expense of a guinea a day, besides his expenses. So highly were the Swedes pleased with his labors, and of such high value did they consider the improvements to agriculture, resulting from them, that Mr. Stephens was employed, subsequent to his first engagement, to survey and make plans for the drainage and cultivation of about one hundred and eighty thousand acres of wet land in that country. Appended to the work from which we make the following extract, is the report made to the Royal Agricultural Society of Orebro, highly complimentary to Mr. Stephens, and creditable to the Elkington system of draining which he pursued.—*Cond. Cult.*

INTRODUCTION.

The importance of draining, previous to the commencement of any other improvement in agriculture, being acknowledged by every cultivator of the soil, it is of the greatest consequence that these undertakings should be conducted on principles which will insure complete and permanent success. The full advantages of this primary improvement can only be obtained when it is well done. It is, indeed, the mother of all other improvements in land; and, to make it effectual, it is necessary that the qualities of the soil, the nature of the stratification, and the laws that govern the rising and running of water, should all be taken into consideration. Any drainage, not conducted with due regard to these, however apparently successful at first, will, in the end, turn out a complete failure. If the work is executed in an insufficient manner, it will often be attended with more expense to remedy the evil than the first outlay; and the operations being concealed under ground, the defects cannot be discovered until a great loss has been sustained.

If landed proprietors were alive to their own interest, they would assist their tenants, to any reasonable extent, in draining on the best principles and in the most substantial manner; for, when properly executed, it is equally as advantageous to the proprietor as to the tenant; and it must be of the highest importance that the interest of both parties should be combined, by performing the work in a complete and permanent manner, as land that is imperfectly drained can never produce crops, either in quantity or quality, equal to land that has been properly dried.

There are few agriculturists or people employed in draining land, that pay proper attention to the stratification of the earth, to which, and the want of a knowledge of hydraulics, may chiefly be ascribed the many mistakes that happen. The stratification of many districts, more especially in North Britain, is so much broken by volcanic or some other eruptions, that a person unaccustomed to the investigation of the causes from which wetness in land proceeds, has very little chance of discovering it, or of drying the land, without a much greater number of drains than is necessary. It is not my intention, in this essay, to enter upon an elaborate detail of the various systems of draining land which are at present practised in this country; but I shall only endeavor to state, in as plain and concise a manner as the nature of the subject will allow, the necessary rules to be attended to in draining the different kinds of soil, and which I have always found, during the course of my practice, to be uniformly successful.

GENERAL PRINCIPLES OF DRAINING.

Wetness in land proceeds either from rain water lodging on the surface or from subterraneous water confined in the bowels of the earth, which, by its own pressure, forces itself to the surface in the form of springs.—On tenacious clays that are nearly level, wetness is often produced by the first of these causes, but it much more frequently proceeds from the latter It is necessary to be able to distinguish from which of these causes the wetness proceeds, to insure success, (for *surface draining*, when the water is subterraneous, can only alleviate the effect, in place of removing the cause,) to accomplish which, requires no small extent of knowledge of the nature and source of springs.

The earth is composed of strata of very various kinds, which, when applied to draining, may, without regard to their other characteristics, be divided into two classes, viz. *porous* and *impervious*, All those kind of strata, whose less coherent parts receive water freely, and through which it runs with ease, such as rotten rock, gravel, sand, and loamy clays, are called *porous*. On the other hand, tenacious clays, and a certain kind of gravel, having a proportion of clay in its composition which, by binding the small stones together, renders it equally as impervious as clay itself, and such rock as is of a close and compact nature, without any fissures in it, are the principal strata that resist the reception of water, and are therefore called *impervious*. Springs undoubtedly originate from the rain and snow water subsiding through porous strata, till it meets an impervious stratum that presents an obstruction to its further descent, and here forming a reservoir or considerable collection of water, it is thus forced, either to filtrate along such a substance, or rise to the surface, where it oozes out in those different ways that are so frequently met with. When the stratum which contains the water composes part of a hill or rising ground, from which the water has descended, it will force its way to the surface wherever it finds the easiest passage; this is sometimes by a natural outlet, but often this is not apparent, and it is confined so near the surface as to injure it by constant moisture, or by oozing imperceptibly through any small pores in the soil. The great object, therefore, in draining, is to cut off entirely the source of the springs or subterraneous water, which causes the wetness, by flowing over the surface, or being confined beneath it. This was discovered by Mr. Elkington, whose leading principles are, *first*, to find out where the water lies in different soils and situations, and under what circumstances; *second*, to lay out the drains so as most effectually to remove the water; *third*, to make the drains the most perfect for this purpose, either by digging alone, or by digging and afterwards boring in their bottoms with an auger—the chief object being to dry the ground effectually and at the least expense. When the subterraneous water lies at such a depth that the level of the outlet will not admit of a drain being cut so deep, or where the expense would be too great, the auger is used to make bore holes in the bottom of the drain, through which the water rises by its own pressure. The truth of the principles of this system of draining has been proved by the extraordinary results which have attended it, not only in this country, but in others, as will be seen by the annexed account of draining in Sweden. By it not only the land that was intended to be drained, but also springs, wells, and wet ground at a considerable distance, with which there was no apparent communication, have been made dry.* As, however, the whole depends upon the situation of the ground, and the nature and inclination of the strata of the adjacent country, a knowledge of these must be obtained before any of the operations are commenced, which will be fully explained in the following details of the different cases.

DRAINING BOGS AND MARSHES.

The bogs and marshy grounds injured by springs, which form a very great proportion of the wet land of this country, are thought by many incapable of being drained; but however impracticable it may appear, the many thousand acres which have been lately brought into cultivation, not only show that they can be easily drained at little expense, but that when they are made dry, they are, in many instances, more valuable than the lands in their vicinity. It is quite apparent that bogs and marshy grounds originate sometimes from water breaking out of the adjacent heights, in a regular line along their upper side—at other times from springs rising promiscuously over the whole surface, forming generally what are called *welleyes;* but more frequently from both causes conjoined, and forming quagmires, which shake all around, so as to be dangerous for a person to walk across: they are easily distinguished at a distance, by the verdure of the grass around the *welleyes.* Under the peat earth, which varies in depth from five to twenty feet, and, in some instances, more, a bed of clay is sometimes found, and under that, a stratum of sand or gravel; but, in others the whole of the sub-strata is composed of the same substance as the adjacent eminences. The clay bed between the moss and the porous stratum being, in many places, very thin, the pressure of the water in the high ground forces that with which it is connected under the bog through the more porous part of the clay and moss to the surface, forming the appearances just mentioned. Such are the general features of bogs and marshes; nevertheless, in every district of the country, much ground still lies waste from the same cause, although containing no peat, on which the same mode of draining ought to be resorted to.

In draining boggy or marshy ground, the first thing to be considered is the best direction for the outlet, and to ascertain its level; the next thing is to fix the direction in which the drains are to be cut. When the water breaks out on the upper side of the moss, a drain must be carried along the line of the wetness, sufficiently deep to intercept it, with outlets to the cross drains, which must be cut such a depth as to suit the level of the outlet. If the extent of land to be drained is considerable, it is advisable to divide the whole by open drains into fields, according to the position of the ground. The drains must be made from five to six feet deep, and when this depth does not reach the bottom of the moss, or to the stratum containing the water, bore holes or wells must be made in their bottom, through which the confined water will rise by its own pressure to the bottom of the drain, so that it will be reduced to the same level. The bore holes are made with an auger about five inches in diameter; but when the mossy or peaty earth is so soft that they will not keep open, wells filled up to the bottom of the drain with small stones must be made. These operations will not only prevent the springs from the adjacent high grounds overflowing the moss, and remove the subterraneous water, but will, also, in most cases, completely free it from surface water proceeding from rain or snow; when, however, any of the latter remains, it must be remedied by wedge or shoulder drains, made from the moss itself, which, if properly executed, and vermin, such as moles and water mice, prevented from injuring them, will last for twenty or thirty years. For a further elucidation of these principles and their details, I beg to refer the reader to the account of the drainages of Afraby and Unger mosses.

---

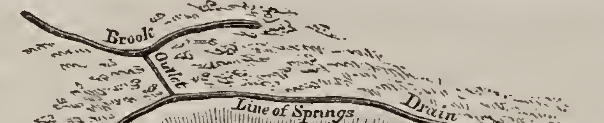
* The author experienced a case of this kind lately in draining some fields for Lord Willoughby de Eresby, in Lincolnshire, where a well, in the possession of the tenant, about a mile distant from the operations, was completely drained.

DRAINING HILLY AND SLOPING GROUNDS.

Before commencing any operation on land of the above description, it is necessary to examine the quality and inclination of the strata of the adjoining high grounds, and the connection they have with the land to be drained, in order to judge where the water lies. The best way to ascertain the inclination of the strata, is, by examining the beds and banks of the nearest rivers, and any old pits and quarries in the neighborhood, and then sinking pits or boring in the ground to be drained. Rushes and other aquatic plants appearing on the surface may facilitate the investigation, but these being also produced by stagnant water on the surface, where there is no spring, cannot be depended on in cases where more minute precision is necessary.

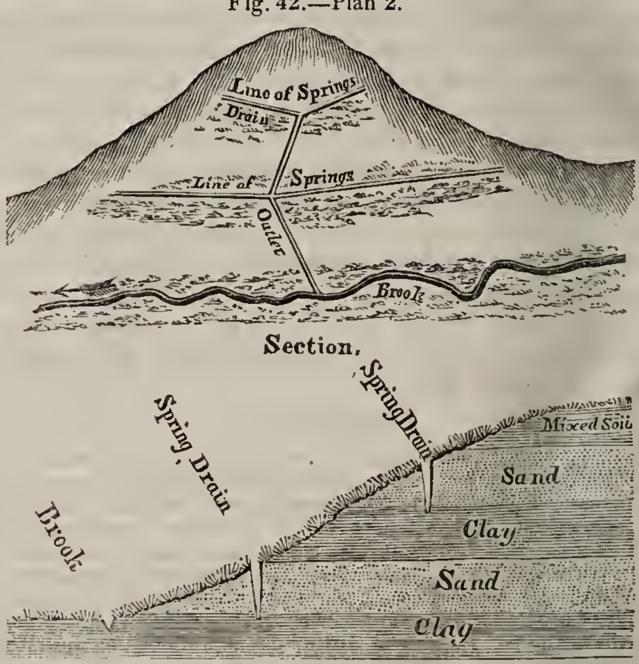
If the *impervious* stratum immediately under the *porous* one, lies horizontally through the hill or bank, the surface of the ground below the level will be wet on both sides of the hill, and the upper side of the wet surface will be found nearly on a level all the way round. When this is the case, and the hill or bank is composed of gravel or rotten rock, a drain properly conducted along one side of the hill will carry off the water that breaks out and causes the wetness on both sides. But if the stratum of which the hill or bank is composed is a substance of a less porous nature, such as very fine sand, through which the water requires a considerable time to filtrate, the drain must be carried round the hill, near the upper side of the wetness, otherwise a complete drainage will not be obtained in wet seasons, when every part of the *porous* stratum is full of water.—(See plan 1—the lower part of the cut representing a cross section.)

Fig. 41.—Plan 1.



It very frequently happens on sides of hills and sloping grounds, that several lines of springs break out and cause wetness to a considerable distance below, with intermediate spaces of dry land between them: in such cases, it is of the greatest consequence to ascertain whether the water causing these lines of wetness proceeds from the same stratum or from several distinct strata. If it is from the first of these causes, which is very seldom the case in hilly lands, the greatest quantity of water will issue from the lowest springs, and in dry seasons the upper ones will be dried up; in this case, the drain should be directed along the lower line of springs, as shown in plan 1, which must be made of sufficient depth to cut off the water from the land below. When, however, the springs come from different strata, having no communication with each other, which most frequently is the case, a drain must be carried along the upper side of each line of springs, as shown in plan 2, deep enough to cut through the porous stratum, or to free the land from superfluous moisture to such a depth as will prevent it injuring vegetation. Sometimes the upper line of springs causes the whole of the wetness below, by the water, after having run over the surface for some distance, sinking into the soil and breaking out again farther down the declivity, or where from the inclination of the ground, it may collect itself. When this happens in a steep bank, and the water gets into the loose earth, it causes the bank to slip, and it therefore is of the greatest importance that this fact should be ascertained before the commencement of the operations, as when such is the case, the drain must be made across the slope farther up than where the water makes its appearance, in the sound ground that has undergone no change; and, if it is made deep enough, the real spring will be intercepted, and the bank secured from slipping.

Fig. 42.—Plan 2.



When the drain has too rapid a descent, and at the same time, it crosses a vein of fine sand which is often met with, the stones with which the conduit of the drain has been laid will be undermined by the rapidity of the current, whereby the whole materials with which the drain has been filled will sink and render it useless in a very short time. In such cases, where there are no open ditches on the sides of the field, to receive the water from the cross drains, the outlet must either be carried obliquely or zigzag down the slope to the under side of the field; or the place best adapted for a watering pond, which ought never to be neglected in situations where there is a scarcity of water.—*(To be continued.)*

[*From Chaptal's Chemistry applied to Agriculture.*]

OF NUTRITIVE MANURES—*Concluded.*

Messrs. Gay-Lussac and Thenard have obtained, by an analysis of the woody fibre, oxygen, hydrogen, and especially more carbon, than from any other part of the plant, and they have determined their several proportions. We know that fermentation carries off much carbon; it is then evident that, by causing the fermentation of the vegetable fibre, the principle which forms its distinguishing characteristic will be gradually diminished, and that it will no longer be a body insoluble in water. It is in this manner that woody plants and the driest leaves are converted into manure.

But as all the solid parts of plants contain fibres which cannot be rendered soluble in water, but by a long period of fermentation; and as it is in the fibre that carbon, a principle so necessary to vegetation, chiefly exists, the fermentation of plants is indispensable to the procuring of the best part of their manure.

The custom of appropriating some crops whilst green to the manuring of the ground, may perhaps be objected to; but I have observed, that in that case the plants are buried in the earth at the time of flowering; and whilst they are succulent, and their fibres soft, and but little formed; and that warmth and the action of water in the earth was sufficient to decompose them, this would not take place if the stalks were dried and hardened by the formation of the grain.

The dung of quadrupeds may be mixed advantageously with the earth at the time of being taken from the stable, if it contain no litter, but if it does, it appears to me better to cause it to undergo a slight fermentation, in order to dispose the straw or leaves of which it is composed to become manure.

It is necessary, in producing the fermentation of dung and litter, to use certain precautions by which the inconveniences arising from the usual mode may be avoided.

Instead of heaping up in large masses the collections of the barn-yard and stables, and allowing them to rot uncovered, and exposed to the changes of weather, they should be placed under a shed, or be at least protected from the rain by a roof of straw or heath. Separate layers should be formed of each clearing of the stables, cow-house, and sheep-pens. These layers should be from a foot and a half to two feet in thickness; and when the heat produced in them by fermentation, rises in the centre to more than 95°, or when the mass begins to smoke, it should be turned, to prevent decomposition from going too far.

Fermentation should be arrested as soon as the straw contained in the heap begins to turn brown, and its texture to be decomposed. To do this, the mass may be spread, or carried into the fields, to be immediately mixed with the soil; or there may be mixed with it mould, plaster, turf, sweepings, &c.

When the dung is not of the usual consistency, as is the case with that of neat cattle during the spring and autumn, it ought to be employed immediately, as I have already stated; but if it be impossible to apply it to the fields whilst recent, it should be mixed with earths or other dry and porous substances, which may serve as manures for the fields destined to receive it.

Upon nearly all our farms the dung of quadrupeds is exposed to the open air, without the protection of a shed, as soon as it is removed from the stables; and is thus washed by the rains, which carry off all the salts, urine, and soluble juices, and form at the foot of the mass a rivulet of blackish fluid, which is either wholly evaporated or lost in the ground. In proportion as fermentation advances, new soluble combinations are formed, so that all the nutritive and stimulating principles of the dung gradually disappear, till there remain only some weak portions of the manure, intermingled with stalks of straw which have lost all their goodness.

To remedy as much as possible an abuse so injurious to agriculture, it is necessary at least to dig a deep ditch to receive all the juices which flow from the dunghill, in order that they may be used in the spring upon the corn or grass lands; or they may be preserved to water the grass lands with, after the first mowing. A large cask, fixed upon a small cart, and which can be filled by means of a hand pump, is sufficient for this purpose. Beneath the tap of the cask must be fitted a narrow chest about four feet long, with the bottom pierced with holes, through which the liquor may be scattered. This mode of watering, when used after mowing, produces wonderful effects upon the crop of the following year.

Before deciding upon the question, whether dung and litter should or should not be made to ferment, it is necessary to take into consideration the nature of the soil to be manured. If this be compact, clayey, and cold, it is better that fermentation should not have taken place, as two effects will be produced by the application of the manure in an undecomposed state. In the first place it will improve the soil by softening and dividing it, so as to render it permeable by air and water; and in the next place it will, whilst undergoing the successive processes of fermentation and decomposition, warm the soil. If, on the contrary, the soil be light, porous, calcareous, and warm, the thoroughly fermented manure, or *short muck*, as it is called by farmers, is preferable, because it gives out less heat, and instead of opening the earth, already too porous, to the filtrations of water, it moderates the flow of that fluid. Long experience has made these truths known to observing, practical farmers.

When it is required to apply dung to any particular kind of soil, it is necessary that it should be used according to a knowledge of its qualities. The dung of animals bearing wool is the warmest; next, that of horses; whilst that of cows and oxen contains the least heat of any.

Soft or fluid animal substances change the most easily; and the progress of their decomposition is rapid in proportion to the diminution of the quantity of earthy salts contained in them. Their decomposition produces an abundance of ammonial gas. This circumstance distinguishes them from vegetable substances, the decomposition of which gives rise to the production of that gas only as far as they contain a small portion of albumen. It is particularly to the development of ammonial gas, which, combined with gelatine, passes into plants, that we can attribute the wonderful effect produced upon vegetation by certain dry animal substances, of which we shall speak presently.

Next to the dung of animals, of which I have just spoken, the urine of horned cattle and of horses is the most abundant manure which can be used in agriculture; and it is not without regret that I see every day so little pains taken to collect it. I have already observed, that in those countries where agriculture is conducted with the most care and skill, all the stables are floored, and the bottoms of them gently sloping, so as to condut all the urine into a reservoir, where the remains of rape seed, flax, wild cabbage, human excrements, &c. &c. are thrown into it to undergo fermentation. In the spring, when vegetation begins to be developed, this fermented liquor is carried into the fields to water the crops.

There are few animal substances of which the nature varies as much as that of urine; the quality of food, or the state of health, produces a sensible change in it. The urine of animals is more or less abundant and active in its qualities, in proportion as their food is juicy or dry. Those which live upon dry fodder give less urine than those which are fed upon green herbage; but that of the first contains a greater quantity of salts than that of the last; and that which is produced directly by drink, contains less animal matter than that which is secreted from the blood by the urinary organs. There are different states of individuals, which may explain satisfactorily the disagreements in the results which have been given, by the numerous analysis which have been made of this fluid.

Mr. Brandt has found the urine of a cow to contain,

Water,	65
Phosphate of lime,	5
Muriate of potash and ammonia,	15
Sulphate of potash,	6
Carbonate of potash and of ammonia,	4
Urea,	5
	100

Messrs. Fourcroy and Vauquelin have extracted from that of the horse,

Carbonate of lime,	11
Carbonate of potash,	9
Benzoate of soda,	24
Muriate of potash,	9
Urea,	7
Water and mucilage,	940
	1,000

An analysis of human urine by M. Barzelius afford,

Water,	933
Urea,	30.1
Uric acid,	1
Muriate of ammonia, free lactic acid, lactate of ammonia, and animal matter,	17.4
	981.5

The remainder is composed of sulphates, phosphates and muriates.

It may be seen from these analysis, that there is a wide difference in the urine of various animals, but that all contain salts which enter into plants, with the water by which they are held in solution; and draw in at the same time those animal portions; which, like urea, are easily soluble, and can be decomposed without difficulty.

Amongst the principles contained in urine, there are some salts undecomposable by the digestive organs of vegetables; such are the phosphate of lime, the muriate and the sulphate of potash. These can serve only to excite and stimulate the organs; but the urea, the mucilage, the uric acid, and other animal matters, must be considered as eminently nutritive. Urine in its recent state, should never be employed as manure; it acts with too much force, and has a tendency to dry the plants; it should therefore be either mixed with water, or allowed to ferment.

Urine is very useful for moistening all those substances which enter into composts; it increases the fertilizing properties of each one of them, and facilitates fermentation of those which need to be decomposed before yielding their nutritive qualities.

Urine, when combined with plaster, lime, &c., forms a very active manure for cold lands.

Bones and horn scrapings have, at the present time, become in the hands of the agriculturist powerful agents in fertilizing the soil. These parts of animals are principally composed of phosphate of lime and gelatine. Those bones which are most usually employed, contain about equal quantities of phosphate and gelatine. The bones of the ox yield from fifty to fifty-five per cent of gelatine; those of the horse from thirty-six to forty; and those of the hog from forty-eight to fifty.

The bones of young animals contain more gelatine than those of older animals, and have a less compact texture. The bones of the feet of the elk, the roe-buck, stag, and hare afford, upon analysis, from eighty to ninety per cent of phosphate.

When bones are to be employed as a manure, they should be ground fine, and thrown into a heap to ferment. As soon as this action shall have commenced, so as to give out a penetrating odor, the mass should be spread upon the earth, and be afterwards mixed with it; or it may be thrown upon the seed, and buried in the ground with it. When seeds are sown in furrows, it is a good method to place some of the ground bones in the furrows with them.

In some countries the fat and a great part of the gelatine are extracted from bones, by boiling them in water, before selling them for agricultural purposes. But by this operation they are deprived of a great part of their fertilizing powers. Upon carefully observing the appearance of a mass of bones under fermentation, I found the surface of a part of them to be covered with a thin coating of an unctuous substance, sharp and biting to the taste. This appeared to me to be formed by the combination of gelatine with ammonia; this last being always developed during the decomposition of all animal substances. The observations of M. D'Arcet, to whom we are indebted for a very valuable work upon gelatine, support this opinion.

It is possible, that, when the ground bones are employed without having been first submitted to the commencement of a fermentation, the gelatine is gradually decomposed in the ground, and the same result at length produced; or, we can conceive that water, acting upon the bones, will dissolve the gelatine, and transmit it to plants; and in both these cases the influence of the bones upon vegetation is very great, whether it be considered as a purely nutritive manure, or in the double connexion of a nutritive and stimulating substance.

When bones are calcined in a close vessel, they yield oil and carbonate of ammonia; the proportion of the phosphate is not sensibly diminished; but the gelatine is decomposod. There remains after the operation from sixty-six to seventy-two per cent of the weight of the bones employed. This residue, broken and pulverized with care, is of great use in the process of refining sugar. After having been used in this process, and become impregnated with ox-blood and animal carbon, I have found it to be one of the best manures which I could employ for trefoil and clover. It should be scattered with the hand upon the plants, when the vegetation begins to be developed in the spring.

Some of the dry parts of animals, as the horns, hoofs, and claws approach closely to bones in the nature of their constituent principles; but the proportions of these vary prodigiously. In such parts, gelatine constitutes the largest portion; and for this reason they are more esteemed as manure than the bones. M. Merat-Guillot has found but twenty-seven per cent of phosphate of lime in the horn of a stag, and M. Hatchett, by an analysis of five hundred grains of the horn of an ox, gained only one-fifth part of earthy residuum, of which a little less than one half was phosphate of lime.

The clippings and parings of horns form an excellent manure, of which the effect is prolonged during a succession of years, owing to the difficulty with which water penetrates them, and the little tendency they have to ferment.

A very good manure is likewise formed from wool. According to the ingenious experiments of M. Hatchett, hair, feathers, and wool are only particular combinations of gelatine with a substance analogous to albumen; water can only dissolve them by means of fermentation, which takes place slowly, and after a long time.

One of the most surprizing instances of fertile vegetation that I have ever seen, is that of a field in the neighborhood of Montpelier, belonging to a manufacturer of woollen blankets. The owner of this land causes it to be dressed every year with the sweepings of his workshops; and the harvests of corn and fodder which it produces are astonishing.

It is well known, that the hairs of wool transpire a fluid which hardens upon their surface, but which possesses the property of being easily soluble in water. This substance has received the name of animal sweat; the water in which wool has been washed contain so much of it, as to make it very valuable as a manure.

I saw, thirty years since, a wool merchant in Montpelier, who had placed his wash-house for wool in the midst of a field, a great part of which he had transformed into a garden. In watering his vegetables he had used no other water than that of the washings; and the beauty of his productions was so great, as to render his garden a place of general resort. The Genoese collect with care, in the south of France, all they can find of shreds and rags of woollen fabrics, to place at the foot of their olive trees.

According to the analysis of M. Vauquelin, this animal sweat is a soapy substance, consisting of a base of potash, with an excess oily of matter, and containing, besides, some acetate of potash, a little of the carbonate and of the muriate of the same base, and a scented animal matter.

The dung of birds is another very valuable manure; differing from that of quadrupeds in the food's being better digested; in containing more animal matter, being richer in salts, and affording some of the principles which are found in the urine of four footed animals.

The dung of those sea-fowls, which are so numerous in the islands of the Pacific ocean, and of which the excrement furnishes an important article of commerce with South America, as, according to the accounts of M. Humboldt, they import into Peru fifty shiploads of it annually, contains, besides a great quantity of uric acid partly saturated by ammonia and potash, some phosphate of lime, of ammonia, and of potash, as well as some oily matter. Davy found the dung of a cormorant to contain some uric acid.

The good effects resulting from the use of pigeons' dung, in our country, has caused it to be carefully collected. One hundred parts of this, when fresh, yielded to Davy twenty-five parts of matter soluble in water, whilst the same, after having undergone putrefaction, gave but eight; whence this able chemist concluded with reason, that it was necessary to employ it before being fermented. This is a warm manure, and may be scattered by the hand before covering the seed; or it may be used in the spring upon strong lands, when vegetation appears languid.

The excrement of the domestic fowl approaches nearly in its qualities to that of the pigeon, without, however, possessing the same degree of power. It contains also some uric acid, and may be applied to the same purposes as pigeons' dung.

In the south of France, where they raise many silk-worms, they make great use of the larvas, after the silk has been spun from the cocoons. They are spread at the foot of the mulberry and other trees, of which the vegetation is in a languishing condition; and this small quantity of manure reanimates them surprisingly. Upon distilling some of these larvas, I found more ammonia than I have ever met with in any other animal matter.

Night soil forms an excellent manure; but farmers allow it to be wasted, because it is too active to be employed in its natural state, and they know not how either to moderate its action, or to appropriate it during different stages of fermentation to the wants of various kinds of plants.

In Belgium, which has been the cradle of enlightened agriculture, and where good modes of cultivation are continued and constantly improved, they make astonishing use of this kind of manure. The first year of its decomposition, they cultivate upon the soil to which it is applied, oleaginous plants, such as hemp and flax; and the second year sow the land with corn. They likewise mix water with urine, and use it to water the fields in the spring when vegetation begins to unfold. This substance is likewise dried and scattered upon fields of cabbage.

The Flemings value this kind of manure so much, that the cities set a high rate upon the privilege of disposing of the cleansings of their privies; and there are, in each one of them, sworn officers for the assistance of those who wish to make purchases. These officers know the degree of fermentation suited to each kind of plant, and to the different periods of vegetation.

We shall find great difficulty in bringing this branch of industry to the same degree of perfection amongst us, that it has arrived at in Belgium, because our farmers do not realize its importance, and have a repugnance to employing this kind of manure. But could they not collect carefully all these matters, mix them with lime, plaster, or gravel, till the odor was dispelled, and then carry the whole upon the fields?

Already, in most of our great cities, the contents of the privies are used for forming *poudrette;* this pulverulent product is sought for by our agriculturists, who acknowledge its good effects; let us hope, that, becoming more enlightened, they will employ the fecal matter itself, as being more rich in nutritive principles, and abounding equally in salts; they can easily govern and moderate the too powerful action of this, by fermentation, or what is still better, by mixing with it plaster, earth, and other absorbents, to correct the odor.

As dunghills are the riches of the fields, a good agriculturist will neglect no means of forming them; it ought to be his first and daily care, for without dung there is no harvest. The scarcity of dunghills, or what is the same thing, the bad state of the crops, sufficiently proves the prejudices, by which the peasant is every where governed; and the habitual blindness with which he proceeds in his labors. In our country many of those who cultivate the land, know only the kinds of straw which are suitable for furnishing manure, and in a dunghill of litter, consider them as acting the principal part, whereas they are only feeble accessories.

According to the experiments of Davy, the straw of barley contains only two per cent of substance soluble in water, and having a slight resemblance to mucilage; the remainder consists entirely of fibre, which can be decomposed only after a long time, and under circumstances calculated to facilitate the operation.

I do not believe that there is in the whole vegetable kingdom, an aliment affording so little nutriment, either for plants or animals, as the dry straw of grain; serving only to fill the stomachs of the latter; and furnishing to the former but about one hundredth part of its weight of soluble manure.

Weeds, leaves of trees, and all the succulent plants which grow so abundantly in ditches and waste lands, under hedges, and by the road side, if cut or pulled when in flower, and slightly fermented, furnish from twenty to twenty-five times more manure than straw does. These plants, carefully collected, furnish to the agriculturist an immense resource for enriching his lands. Besides the advantage arising from the manure furnished by these plants, the agriculturist will find account in preventing the dissemination of their seeds, which, by propagating in the fields, deprive the crops of the nourishment of the soil. The turf, that borders fields and highways, may be made to answer the same purpose, by cutting it up with all the roots and the earth adhering to them, rotting the whole in a heap, and afterwards carrying the mass upon the fields, or what is still better, by burning it, and dressing the land with the products of the combustion.

If straw did not serve as beds for animals, and did not contribute, at the same time, to their health and cleanliness, it would be better to cut the ears of corn and leave the stalks in the fields; since they serve only as absorbents of the true manures.

It is always said that barn-yard manure, besides its nutritive virtues, possesses the advantage of softening hard lands, and rendering them permeable by air and water. I do not deny the truth of this: I even acknowledge that it owes this property almost entirely to the straw which it contains; but the same effect would be produced by burying the straw upon the spot.

Besides the characteristic of providing plants with food, the various kinds of dung possess other qualities, which add to their fertilizing powers. Dung, as it is applied to the ground, is never so much decomposed as to have ceased fermenting; and from the moment it is mixed with the soil it produces in it a degree of warmth favorable to vegetation, and serving to guard the young plants against the effects of those sudden returns of cold in the atmospheric temperature, which are so often experienced. On account of the viscous fluids which it contains, dung is not easily dried, unless it be in contact with the air. It therefore preserves the roots of the plants in a state of moisture: and supports vegetation at those periods when without it, plants would perish from drought. It likewise contains many salts which are transmitted by water to plants, serving to animate and excite their functions. The various kinds of dung, mixed with earth, may be considered in the light of amendments to the soil; and in this view they ought to vary according to the nature of the earth to be improved. Compact soils require to be separated and warmed; they require, then, those manures which have been but slightly fermented, and that are the richest in salts. Calcareous and light earths require oily manures, which decompose slowly, and can retain water for a long time, to furnish it to the wants of plants in seasons of drought.

It is by separating these principles, that we may be able to appropriate the various kinds of manure to each species of soil and plant; the attention of agriculturists is already directed, upon this point, to the composition of mixtures of manures, called composts. These are formed by arranging, one above another, beds of different kinds of manure, taking care to correct the faults of one by the properties of another, in such a manner as to produce a mixture suited to the soil to be enriched by it.

For example, if it be required to form a compost for a clayey and compact soil; the first bed must be made of plaster, gravel, or mortar rubbish; the second, of the litter and excrements of horses, or sheep; the third, of the sweepings of yards, paths, and barns, of lean marl, dry and calcareous; of mud deposited by rivers, of the fecal matter collected upon the farm, the remains of hay, straw, etc , and this in its turn must be covered with a laying of the same materials as the first. Fermentation will take place first in the beds of dung, and the liquor flowing from these will mingle with the materials of the other layers; when the mass exhibits the signs which I have pointed out, as indicating decomposition to be sufficiently advanced, it must he carried into the fields, care being first taken to mix well the substances composing the different layers.

If the compost be designed to manure a light, porous, and calcareous soil, it must be formed of materials of a very different character. In this case it is necessary that argillaceous principles should prevail; the substances must be compact, the dung of the least heating kind, and the fermentation contiued, till the materials form a yielding and glutinous paste; the earths must be clayey, half baked, and pounded, or consisting of fat and argillaceous marl, and mud from the sea coast. Of these all the layers must be formed.

By following these principles in my operations, I have completely changed the nature of an ungrateful soil in the neighborhood of one of my manufactories. Over this soil, composed of calcareous earth and light sand, I spread, during several years, some calcined clayey earth; and this land, upon which I could formerly raise only stone fruit, has become adapted to fruit containing kernels; and produces excellent wheat, whereas before it bore only scanty crops of oats and rye.

Young Men's Department.

THE HUSBANDMAN.

There is one prevailing error among this class of society, which ought to be eradicated and destroyed—it is more fatal to the business of agriculture than the growth of Canada thistles, or the destruction of May frosts —we mean the neglected education of the farmer's children. It is frequently remarked, that education is of little use to the farmer; a very little science will do for him. Great knowledge is only beneficial in the professional man. Expressions of this sort are founded upon a false estimate of one of the most useful and elevated professions of life.

If the habitual business of the cultivator does not afford the mental powers a field for their most extended exercise, we know not where to look for such a field. The study of agriculture unites to the theory of science, the very essential material of its practical parts. It make the study experimentally and truly learned.

Nearly all that is useful in our pilgrimage through life is drawn from the earth. The main use of science is to explore the minutiæ of nature, to fathom its secret caverns, and to bring forth the hidden possessions of the earth into comprehensible identity. Where, then, is the occupation that so richly furnishes a perpetual supply of mental food as that of agriculture. In the constant exercises and every day labor of the farmer, the business of his science is progressing, if his intellect has been set right in the education of his youth. The theory is all essential, for this constitutes the implement by which he is to prosecute the study of human nature to its practical utility.

A man cannot go forth upon the land with any good degree of promise in scientific experiment, without the light of past experience upon his pathway, and this he can only obtain by a passage through the literary institutions of the country, where the results of the labors of the learned for ages are collected together, and made accessible to the student. To attempt a prosecution of the sciences independent of the past experience, as we sometimes incline to consider ourselves, would be vain. There is scarcely a valuable discovery of modern times, but has borrowed something of its proportions or utility from the mind of antiquity.

That the farmer, by a scientific cultivation of his land, can increase to a very great extent its productions, there does not exist a rational doubt. And that the time is coming when there will be actual necessity for this increase of production, there is every appearance. It is, therefore, not only wise and expedient to commence or carry on now, but it is a high duty which is owed to posterity, in consideration of all the blessings which past ages have bequeathed us.

Permit us, therefore, in our humble way, to impress upon the minds of the farmers the very great usefulness of education Give your sons and daughters not the less education, because you design them for rural life and agricultural pursuit. If you are able, educate them—they will find abundant employmant for all their science, though their farms be located in the deep wilderness of the west; though they be cast amid barren rocks and sterile sand plains, science will aid them there.

Not a blade of grass nor a spear of grain but will grow better under the cultivation of intellectual care. Not a flower, but will show beauties to the eye of science, which the vulgar world knows not of. Not a vine but rears finer, and produces more, where educated hands superintend its growth. In short, all nature is beautified, improved and bettered, where the cultivator is no stranger to its properties and the science of its developments.

Farmers, give your children education. It is the only earthly inheritance you can bequeath them, that is beyond the reach of accident. All other human property is constantly changing and transitory. Science is not transferable—not like the mutability of other goods, negotiable. Firm and unshaken by human vicissitude, it will be the enduring companion of your children through life, it will support them in all the afflictions of Providential chastisement, and prepare them for an inheritance in that undiscovered country beyond the land of death.—*Troy Whig.*

Department of Health.

HINTS TO THE YOUNG OF BOTH SEXES.

[*Extracts from Johnson's Economy of Health.*]

FOURTH SEPTENNIAD—(21 to 28.)

Typical representation of time.—Time should rest on a winged globe, the emblem of eternal revolution and motion, while typical of that which has neither beginning nor end. From his right hand he is profusely scattering the principles and materials of regeneration and life—with his left hand he is scathing, consuming, and obliterating every thing which he had previously called into existence, at the command of his superior! But between the cornucopiæ and the scythe—between the right hand and the left of this mysterious agent, there exists a fair and ample field, for ever flourishing in perennial vigor. The influx of supply, and the efflux of waste are imperceptible to the eye Parts are constantly added, and parts are constantly subtracted; but the whole remains a whole. The body of nature is ever changing, but never changed. And, as to the human race, though the individual dies, the species remains immortal. The individual constitution exhibits for a time this remarkable condition: During many years, say from the age of thirty to that of forty,—every particle that is taken from the material fabric is simultaneously replaced by another particle of new matter, and thus the living machine is secured from the effects of wear and tear—till the adjusting balance is deranged, and the supply becomes inadequate to the waste.

Majority attained and manhood gained.—To the slave imprisoned in the dark Peruvian mine—to the shipwrecked mariner on the desolate isle, eyeing, from day to day, the boundless horizon in search of a friendly sail —the wheels of TIME do not appear to revolve more slowly than they do to the MINOR approaching his MAJORITY at the close of the third septenniad. The happy morn at last arrives that stamps the minor a man—that liberates him from the control of parent or guardian—that makes him his own master—too often the slave of his own passions, or the victim of designing sycophants! On this, as on many other eventful periods of our lives, the greatest apparent GOOD frequently turns out to be the greatest EVIL—and that which seems at the moment to be a dire misfortune, not seldom eventuates in a most fortunate dispensation.

Phases of life.—Up to this point the supply is greater than the waste, and increase of strength, if not of stature, is the result. In the middle of the fourth septenniad the balance is nearly equipoised—and nature only lends her aid to sustain the equilibrium for many years afterward. But it is in the power of man himself to abridge or extend the period of equilibrium in a most extraordinary degree. The period of this adjusted balance, (say from 28 to 42) is not so very strictly limited as the period between birth and maturity. At the age of forty-two, the summit of the arch of life is gained—and thence it gradually descends. But this keystone of the arch is not so fixed as the keystone of growth at the age of 24 years. By intemperance, by misfortune, by hereditary or accidental diseases, the individual passes his meridian at thirty-five, or even sooner, instead of reaching the meridian of forty-two. Nature too, who is always indulgent to those who obey her dictates, will sometimes, though rarely, protract this middle period to fifty years; but it is in the succeeding period of declension from the meridian that the greatest latitude or variety is observable. After the completion of the seventh septenniad,—forty-nine years—indulgent nature gives a comparatively unlimited scope to the powers of life—at least till the end of the twelfth septenniad—eighty-four—when it seems that, except on very extraordinary occasions, she determines that those who have arrived at that advanced age shall have only a probability (to use the language of the insurance office,) of three years and a half of—DECRIPITUDE!

Difference between males and females.—At the beginning of the fourth septenniad, the female is as much matured in constitution as the male at the middle of the same epoch—but neither the one at twenty-one, nor the other at twenty-four years, is at the acme of *strength* and *firmness* in organization. The human frame will have acquired its ultimate healthy dimensions, but not its solidity and full power of bearing labor and fatigue, till the age of twenty-four in the one sex, and twenty-eight or thirty in the other.

The fourth septenniad the most critical for both sexes.—The fourth septenniad, then, is perhaps the most critical and dangerous for both sexes in the whole series—as far as health and happiness are consigned. The HEALTH of the male sex is more periled—the HAPPINESS of the female—if indeed it be possible that one of these conditions can be damaged without the participation of the other!

Exercise and temperance.—I have already observed, that about the middle of the fourth septenniad, (24 or 25) man arrives at the limit of physical development; but it is rather the acme of dimensions than of density—of structure rather than of strength. During the latter years of growth, especially if it be rapid, nature appears to be, in some degree, exhausted by the effort of completing the fabric, and requires a temporary economy rather than a profuse expenditure of her powers. The human tabernacle, like other tenements of clay, is much better for a few years seasoning and settlement after the building is completed. The tall and full grown pine is too soft and succulent to be formed at once into the giddy mast, and bend elastic to the sweeping gale.

A stock of temperance and exercise, laid in at this period, will return fifty per cent more of profit in the course of life, than if attempted at any other epoch subsequently. *Temperance* not only conduces *directly* to the consolidation of the constitutional edifice just completed, but proves one of the best bulwarks against some of the most fatal rocks on which health and happiness are often wrecked in riper years.

Exercise, at this period, not only co-operates with temperance in the invigoration of the body, but powerfully controls those effervescences of temperament, and tides of exuberant energy, that so often burst their proper boundaries, and hurl the youth impetuously along,

> "In pleasure's path, or passion's mad career."

When the poet apostrophized the good fortune of those who crown a "youth of *labor*" with an "age of *ease*," it is clear that by the term *labor* he meant industry—and by *ease* independence. But the literal acceptation of these significant words is even more applicable than the metaphorical. Exercise, in the early years of life, is more certainly followed by freedom from pain, in the advanced epochs of existence, than economy is followed by competence—or, in the words of the poet—labor by ease. If the youth could see, as the physician daily sees, the exhorbitant USURY which habitual indulgence in pleasure and sloth pays in the sequal—and that, too, not in money, which is dross, but in bodily and mental suffering, (the only penalty that will be accepted,) he would shudder at the prospect—dash the cup from his lips—and tug at the oar of industry like the meanest peasant.

Danger of indolence.—The fourth septenniad is not perhaps the most proper period for repressing the passions of ambition or avarice, and of encouraging exercise of body and relaxation of mind. The love of pleasure has not yet experienced the slightest check from rivals that are, at a future day, to overwhelm and annihilate it; but indolence is apt to insinuate itself between love and ambition in this period of life, and, having once got the mastery, may injure and even incapacitate the individual, by gradually sapping the moral and physical energies before they are completely developed.

Matrimony.—The fourth septenniad is claimed, in an especial manner, by Hymen—Cupid having been for some years previous in the field as pioneer. The most proper age for entering the holy bands of matrimony has been much discussed, but never settled. I am entitled to my opinion, and although I cannot here give the grounds on which it rests, the reader may take it for granted, that I could adduce, were this the proper place, a great number of weighty reasons, both moral and physical, for the dogma which I am going to propound. The maxim, then, which I would inculcate, is this—that matrimony should not be contracted before the first year of the fourth septenniad on the part of the female, nor before the last year of the same in the case of the male. In other words, the female should be, at least, twenty-one years of age, and the male twenty-eight years. That there should be seven years difference between the ages of the sexes, at whatever period of life the solemn contract is entered upon, need not be urged, as it is universally admitted. There is a difference of seven years, not in the actual duration of life of the two sexes, but in the stamina of the constitution, the symmetry of the form, and the lineaments of the face. The wear and tear of bringing up a family might alone account for this inequality—but there are other causes inherent in the constitution, and independent of matrimony or celibacy.

In respect to early marriages, so far as it concerns the softer sex, I have to observe that, for every year at which the hymenial knot is tied before the age of twenty-one, there will be, on an average, three years of premature decay of the corporeal fabric, and a considerable abbreviation of the usual range of human existence. It is in vain to point out instances that seem to nullify this calculation. There will be individual exceptions to all general rules. The above will be found a fair average estimate.

On the *moral* consequence of too early marriages, it is not my intention to dilate; though I could adduce many strong arguments against, and very few for the practice. It has been said that "matrimony may have miseries, but celibacy has no pleasures." As far as too early marriage is concerned, the adage ought to run thus—marriage *must* have miseries, though celibacy *may* have no pleasures.

[*Note.*—We ought before to have remarked, that the extracts we make from the *Economy of Health* are not continuous, but detached paragraphs—and comprise but a small portion of the chapters from which we extract. We can heartily recommend the volume to the reader, as richly worth the seventy-five cents he will have to pay for it to the bookseller.—*Cond.*]

RECEIPTS, from Aug. 21 to Oct. 25, inclusive.—Nos. under 10 not noticed.

Athens,	Geo.	33	Jackson,	Tens.	22	*Port Depesite,	Md.	3
*Aldie,	Va.	42	Jeffersonton,	Va.	11	Putnam,	O.	16
*Alexandriana,	N.C.	48	Kingsville,	Md.	11	Petersburgh,	Ga.	23
Annapolis,	Ia.	11	Knoxville,	Tens.	11	*Richmond,	Va.	101
Brinklyville,	N.C.	11	*Laurens, Ot.		19	*Reister's Town,	Md.	22
*Boston,	Mass.	68	*Lanark,	U.C.	44	*Rapid Ann,	Va.	22
*Baltimore,	Md.	75	Laurenceville,	N.J.	22	*Suffolk,	Va.	55
*Burlington,	Vt.	23	Lindsay's Store,	Va.	11	*Shrewsbury,	N.J.	25
BethanyChurch,	N.C.	11	*Moore's Salt Works,	O	26	*Salem,	N.J.	24
Culpepper C. H.	Va.	11	Mechanicsville,	Va.	11	*Saundersville,	Ia.	22
Columbia,	S.C.	20	*Murfreesboro,	Ten.	117	*Sandersfield,	Mass.	16
*Charlotteville,	Va.	37	Madison,	O.	11	St. Catharines,	U.C.	33
Draper's Valley,	Va.	11	Manhasset,	L.I.	11	*Syracuse, On.		15
Durham,	Ct.	10	*Maumee city,	O.	12	*Sag-Harbor, Suff		15
Dansville, Liv.		10	*Nuttsville,	Va.	22	Trogman's Store,	Va.	11
Delaware city,	Del.	10	North Lake,	Mich.	13	Titusville,	N.J.	11
East Hartford,	Ct.	14	*New-York city,		205	*Utica, One.		92
Ellsworth,	O.	16	New-Harmony,	Ia.	27	*Woodstock,	Vt.	66
Easton,	Pa.	13	*Norwich,	Ct.	37	*Westmoreland,	N.H.	19
*Flemington,	N.J.	28	Newington,	N.H.	11	*Washington,	D.C.	125
Fork Inn,	Va.	11	*New Albany,	Ia.	60	*Worcester,	Mass.	14
Fredericksburg,	Va.	11	Northville, Mont.		12	Warren,	Va.	11
Frederick,	Md.	44	*Owego, Tio.		36	*Wilkinson's X R.	Te.	21
Franklin,	Ky.	11	*Otego, Otsc.		16	Waterville,	O.	11
*Goshen, Or.		36	*Philadelphia,	Pa.	193	Yelvington,	Ky.	11
*Hicks' Ferry,	Ark.	22	Pennington,	N.J	11			
Heathsville,	Va.	11	*Plattsburgh, Clint.		46			

Total number of volumes subscribed for during Sept. and Oct. 1,631.
* Including former payments.

PRICE CURRENT.

ARTICLES.	New-York. Oct. 28.	Boston. Oct. 20.	Philadel'a Oct. 24.	Baltimore. Oct. 24.
Beans white, bush........	2 00.. 2 25	1 37.. 1 75	1 37..1 62	1 25..1 50
Beef, best, cwt...........	6 00.. 7 50	5 00.. 6 50	7 00..8 00	6 00..
Pork, per cwt............	8 00..10 00	7 00.. 9 00	8 00..11 00	7 00..
Butter, fresh, pound, ...	18.. 22	20.. 25	14.. 18	20.. 25
Cheese, pound, ...	7.. 10	8.. 9	9.. 10	9.. 10
Flour, best, bbl......	8 37.. 9 00	8 00.. 9 00	8 50..9 00	8 75..9 00
GRAIN—Wheat, bushel, ..	1 30.. 1 70	....	1 70..1 87	1 50..1 80
Rye, do. ..	91.. 1 00	1 25.. 1 33	95.. 96	.. 85
Oats, do. ..	40.. 50	75.. 78	.. 43	32.. 34
Corn, do. ..	1 04.. 1 06	93.. 1 06	1 02..1 03	93.. 98
SEEDS—Red Clover, lb...	13	15.. 16	9.. 11	7½.. 8½
Timothy, bushel,.	1 82.. 2 00	2 75.. 3 00	1 25..2 00	3 50..4 00
WOOL—Saxony, fleece, lb.	75.. 80	50.. 55	65.. 73	40.. 50
Merino, lb...... .	50.. 68	45.. 47	45.. 50	25.. 40
1-4 and com. lb...	40.. 50	30.. 33	40.. 44	28.. 30
Sheep, ...	2 50.. 5 00	1 67.. 3 00		
Cows and Calves,........	22 00..42 00	23 00..42 00		30 0..40 0
Cotton,...........	8.. 12	....	9.. 12	10.. 12

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

Vol. IV. ALBANY, DECEMBER, 1837. No. 10.

PUBLISHED BY THE N. Y. STATE AGRICULTURAL SOCIETY.

J. BUEL, *Conductor*.

☞ *Office No. 3 Washington-street, opposite Congress Hall.* ☜

TERMS.—Fifty Cents per annum, to be paid in advance.

Special Agents.—L. & R. Hill, Esqs. Richmond, Va.; Messrs. Bell & Entwisle, Alexandria, D. C.; Gideon B. Smith, Baltimoro, Md.; Judah Dobson, Philadelphia, Pa.; Messrs. Hovey, Boston, Mass; Israel Post & Co. Booksellers, 88 Bowery; Alexander Smith, Seedsman, Broadway, N. Y. Alex. Walsh, Lansingburgh, gratuitous agent. Any gentleman who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

☞ An absence from home, and a severe indisposition, which have intervened since the publication of our October number, have prevented that personal attention to our correspondents which we have been desirous to bestow, and which we hope hereafter to be able to give them.

PROPOSED IMPROVEMENT.

We intend to enlarge our sheet on the commencement of our fifth volume, in March next, and to advance the subscription price of the Cultivator to One Dollar a year. As our patrons are scattered over a territory of more than fifteen hundred miles in extent, we give this early notice that we may be able, from the returns that shall be made, to graduate our edition of the fifth volume by the extent of our subscription list.

The Cultivator will then be printed on a sheet of twenty-eight by forty inches, of improved quality of paper—costing $8.50 per ream—its contents will be considerably increased—its pictorial illustrations multiplied, and its intrinsic value greatly enhanced. In its new form, a monthly number of the Cultivator will contain as much letter press print as a monthly number of the Penny Magazine, published by the British Society for promoting useful knowledge, and which, at two dollars a year, is reputed to be the cheapest periodical published in the world.

Several considerations have rendered the proposed alterations expedient. The value of our subscription is diminished ten per cent by commissions; it has been reduced other ten per cent, during the last year, by the depreciated value of foreign bills remitted to us in payment; and, though our rules would otherwise indicate, much is lost in bad debts, and a large amount absorbed in postage. But pecuniary considerations are of minor weight, except as they enable us to enhance the value of our publication. The object of our establishment was to instruct, encourage and elevate the great producing class—to improve the moral and social condition of society. Its UTILITY in promoting these great objects, has been demonstrated, in the most satisfactory and flattering manner, by a subscription list of *nineteen thousand names*. We would now essay to enlarge the measure of its usefulness; which we are persuaded we can do, with the aid and co-operation of those generous and patriotic citizens, who, justly appreciating our motives, have hitherto ably and efficiently seconded our efforts. If patriotism is aught but a name, it consists in bettering the condition of society at large; and this is in no way so likely to be effected as by improving the state of our agriculture. "I KNOW OF NO PURSUIT," says Washington in a letter to Sir John Sinclair, "IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE." We indulge the hope, that influenced by this noble sentiment, which we quote from the father of our country, the gentlemen, in different parts of the Union, who have so far sustained our efforts, will not relax in DOING GOOD.

Our subscriptions for the fifth volume will be forwarded with our January number; and every eleventh copy, or its equivalent, will be allowed to gentlemen who forward to us subscription monies free of charge.

AN AGRICULTURAL CONVENTION

Is appointed to be held at the City Hotel, in the city of Albany, on the first Thursday of February next, at 10 o'clock A. M. and the anniversary of the New-York State Agricultural Society will be held at the City Hall on the same day.

Whether these meetings will be well attended, or whether, if well attended, they will result in any measures favorable to the great interests of agriculture, remains to be seen. The exertions of a few individuals, however well intended, or well directed, can effect but little, without the co-operation of the legislature, and of the people at large.

Agriculture is a non-combatant in party warfare. She regards the whole of the community as her children, and as entitled equally to her affections; and has, therefore, no political favors to bestow, and none to ask. She is like the good natured mother, who, slighted and neglected by the children she has nursed and brought up, nevertheless preserves her good temper, from the hope of returning affection in her deluded offspring. But the patience of the good old lady is nearly exhausted, and we opine, that if she would maintain her maternal rights, she must again resume her parental authority.

But to come to plain matters of fact. What is the state of our agriculture, upon the products and profits of which every class of the community must ultimately depend for prosperity in life? Is it improving, in proportion to our increasing wants, or the facilities afforded by the intelligence of the age? Is it sufficiently enlightened, encouraged and respected? Do the people, does the government, give that attention to its improvement, which sound policy suggests, and which its importance imperiously demands? Decidedly the most agricultural people in the world, in our habits, do we raise our own bread-corn, the first requisite to national independence? We do not put these questions to individuals, or to isolated districts—for there are such, we know, that might answer them affirmatively—but we put them to the state—to the nation. To speak in general terms, our cultivated lands have been deteriorating, by an exhausting system of husbandry, from the time of their first occupancy, until not only farms, but entire districts, have been in a measure abandoned, as unfit for the habitation of man. This should not be—need not be. What would be our condition, in regard to wheat, the great staple of our state, were it not for the virgin soils of the west, brought under cultivation within the last forty years? The old districts once produced this grain, far beyond the home consumption. They do not do it now. But they can be made to do it under an improved system of husbandry. The vallies of the Hudson and Mohawk, and the basin of Lake Champlain, can be made to yield again their tribute in this grain, by the same means which have renovated the fertility of modern Europe, and which are now successfully employed in renovating the worn out soils of many districts of our own country.

Some of the once most fertile portions of the old continent are now virtually desert, by reason of the ignorance, the indolence and the violence of man. Are not portions of our own country threatened with a like calamity? There are other portions of the old continent, on the other hand, where the fertility of the soil has been preserved, and there are others where it has been doubled, trebled and quadrupled, by the intelligence and industry of the rural population, encouraged and rewarded by the patronage of government. These examples of wisdom and foresight we can imitate, we ought, and we must imitate, if we would be a free, a prosperous and a happy people. It were folly to erect costly hydraulic structures where there is no water to propel the machinery. Our cities and villages—and the non-producing classes of the community—may be compared to the hydraulic structures, and agriculture to the stream—which gives to them power and utility. If the stream fails, the machinery stops, and is useless. If agriculture languishes, towns decline, commerce diminishes and want pinches.

We will state a plain proposition. An acre of land, managed under the old exhausting system, yields a nett profit of five dollars per annum. Apply this to twenty millions of acres, and you have an aggregate of one hundred millions of dollars, which is annually added to the stock of national wealth by the labors of agriculture, and which is perhaps squandered, or thrown away, by the idle and licentious portion of community. Now if, by legislative encouragement—by a better system of education, and by those stimulants to industry which have been successfully applied elsewhere—each acre of land can be made to double its nett profits—a supposition neither unreasonable nor improbable——our stock of national wealth will be increased one hundred millions of dollars a year beyond what it now is, our lands will be improving, instead of deteriorating, and the nation will be correspondingly prosperous and happy.

We seriously commend this subject to the notice of the editors of our public journals, and to all classes of our population; and hope that the coming winter will show a better spirit towards agricultural improvement than has been witnessed in years past.

PEAT EARTH AND PEAT ASHES,

IMPORTANT SOURCES OF FERTILITY TO THE FARMER.

Peat earth and swamp muck, from our marshes and swamps, are composed principally of decayed vegetable matters, washed in from higher grounds, or the remains of aquatic plants, which have grown and decomposed on the spot. They almost invariably constitute a valuable manure for up-lands, and may be rendered fertile in their place of deposite—when brought into a soluble state by fermentation, or reduced to ashes by fire. These deposites of vegetable matter are often the accumulation of centuries, and have been preserved from ordinary decay by the presence of too much water, and of too little heat and air, until they have become so antiseptic in their quality, as to resist putrefaction in many cases, even when laid dry, until they are brought in contact with fermenting substances, or changed in their nature by the action of fire. These agents it is the province and interest of the farmer to apply. And to instruct him in the mode of employing these great auxiliaries of fertility, is the object of this article, and of other articles which we design to give in our future numbers.

The first step in the process, is to drain well the ground where this earth is deposited, or has accumulated; or, if this is impracticable, to remove the earth to dry ground.

The second step is, if the change is to be effected by fermentation, to mix it with other substances which will readily ferment, or induce fermentation remotely. This may be done by top-dressing, or by composts. The latter is employed when the object is to enrich up-land, and the former when the intention is to render the drained marsh or swamp fertile. The best compost is made of one part unfermented manure, and three parts of swamp earth, placed in alternate strata, to the height of four to six feet. When the temperature of the centre of the mass has reached 80 or 90 degrees, which may be ascertained by a stick shoved in, and left to acquire the temperature of the pile, fermentation has sufficiently progressed, and the whole may be mixed and applied to the soil with certain advantage.

Composts may in like manner be made with lime, green vegetable matter and ashes, and the fermentation accelerated by urine, soap suds, sea-water, kitchen wash, &c.

Fermentation may be induced by carting the earth to the cattle yards, and spreading it to the depth of eight inches or less, to become incorporated, by the tread of the cattle, with their dung, urine, and the liquids of the yard. And it may be induced remotely, by spreading the swamp earth immediately upon the up-land, especially if sandy and dry, where it becomes mixed with the vegetable matters of the soil, and with them undergoes the desired change.

To induce fertility in a peaty soil, after it has been laid dry, a good dressing of long manure, or of lime, are effectual; and often a mixture of three or four inches of sand with the upper stratum, has proved highly efficacious. Pairing and burning is another sure means of inducing fertility. In this operation, some inches of the surface, so deep at least as to embrace the roots of aquatic and other growing plants, is paied off, dried and burnt, and the ashes spread and mixed with the soil.

These operations may be carried on at any season when the ground is not frozen, and when the teams and hands on the farm find leisure. There are but few farms, and fewer districts, that do not abound in this element of fertility.

Peat ashes constitute an article of commerce in Europe, and vast quantities are transported from Holland to Belgium and Flanders, to fertilize those highly cultivated districts. These ashes cost about $13 per ton. A bushel of the best sort, which are black and heavy, weigh about forty pounds, and the ton containing fifty-six bushels, the cost of manuring with them, at the rate of nineteen bushels the acre, would be about $4.50. These ashes, according to the analysis of Prof. Brande, contain, in 100 parts,

Of silicious earth,	32	parts.
Sulphate and muriate of soda,	6	"
Sulphate of lime,	12	"
Carbonate of lime,	40	"
Oxide of iron,	3	"
Impurities and loss,	7	"

The mode of their application, in Flanders, is as follows: They are spread upon young clover, in the spring, in calm and hazy weather, at the rate of eighteen to twenty bushels the acre. They are also laid on pastures and on wheat, in March and April; on oats and beans in the beginning of May, and on rye in October and November. Their chief employment is, however, for green crops; it having been found, on comparative trials in Flanders, that top-dressed clovers, where the ashes were used, were much earlier, heavier, and superior in every respect, to those which had undergone a top-dressing of horse and cow dung. One of the best evidences of their utility, is the fact, that the clover crop never fails when they are applied. Besides improving the crop, they are also useful in preventing the injuries arising from insects, and when applied to pasture, they are highly serviceable in the destruction of moss. To numerous individual declarations of their beneficial effects, Sir John Sinclair, to whom we are indebted for this part of our statement, adds the public declaration of eighty-three practical Flemish farmers, to the effect, that "they know by experience, that when clover is not manured with Dutch ashes, at the rate of nineteen bushels per acre, the following crop is very bad, notwithstanding any culture that may be given to the soil; whereas they always have an excellent crop of wheat after clover, and, doubtless, in proportion to the quantity of manure thus used." The farmers who signed this declaration, in most cases carted the ashes forty and fifty miles by land, after they had been transported by water from Holland. See Sir John Sinclair's account of the agriculture of the Netherlands; also Radcliff's Flanders.

But the use of peat ashes is not confined to the Netherlands. They are extensively used in Britain, and are produced in large quantities from what is termed the Newbury peat. We find in *British Husbandry*, the following description of the mode of burning the peat, and statement of the application and utility of the ashes:

"The peat is cut, with a peculiar kind of spade, into long pieces, about three and a half inches broad every way, after which it is conveyed from the spot where it is dug, in wheel-barrows, to a short distance, where it is spread upon the ground in regular rows, until it be dried by the sun and wind. It is thus cut down until the gravelly bottom is reached, if it can be sufficiently drained; but although persons are employed to pump the water, that cannot always be completely effected.

"After having laid thus to dry about a week the pieces are turned, and this being three or four times repeated, a small round heap is made in the middle of the place where the peat is spread, and in the centre some very dry peat is put, which being lighted, the fire communicates slowly to the rest of the parcel. When it is completely lighted, an additional quantity is put upon the heap, and this is continued till the whole is consumed, which generally occupies one or two weeks, and sometimes still longer, as quick burning is not approved of, and the rain seldom penetrates deep enough to extinguish the fire. The heaps are commonly of a circular form, and rather flat at top; at first very small, but gradually increasing, until they sometimes becomes two or three yards deep, and six or seven yards in diameter. According as the peat is more or less dry, or contains more or less essential oil, or, as it is termed, is more or less fat—according as the weather is favorable or otherwise, and in proportion as the heaps are more or less large, just so much a shorter or a longer time will it take to consume. A fire regularly kept up, but burning by slow degrees, will retain more of the vegetable alkali in it than a more quick one; and in proportion to the heat of the fire the same quantity of peat will produce more or less ashes: Thus it has been stated by Mr. Malcom, that in the parish of Frimhy, in Surrey, three loads of dried peat, which is about the size of the usual heap, will yield from 6,000 to 7,000 bushels [of peat] which have been sometimes known to yield 2,400 bushels of good ashes; though the peat is generally so reduced in measure by combustion, that the ashes seldom yield one-fourth of its original bulk. The ashes being riddled, are then conveyed away in covered carts, and put undersheds to keep them from the wet until they are wanted for the land; for if kept under cover and dry, they are infinitely more strong and active than those which have been made some time, and have been exposed to the weather: the fresher they are, therefore, when used, the better. The usual time of applying them is in March and April, in the proportion of twelve to fifteen bushels per acre, according to soil and crop, as too large a quantity would be injurious, though, on meadow land, twenty bushels are often laid with advantage; and when not used as top-dressings, they are commonly spread at the same time the seed is sown, though for grass many people prefer the autumn. For corn crops, however, they are not in much estimation; but on turnips they are said to assist in checking the fly, and they are supposed to increase clover nearly a ton of hay the acre beyond what it would have yielded without them. Their effect, however, is not calculated to last more than a couple of years, but they are of such benefit to that crop, and to the succeeding wheat, that when a tenant quits a farm on which ashes have been laid the preceding year, it is usually customary to allow him one-half of the expense." These ashes are sold at Newbery at about seven pence (a New-York shilling) the bushel. They are found to contain from one-fourth to one-third part of gypsum, and sometimes even a larger portion. The other constituent parts are a little iron and common salt, with various proportions of clay, sand and lime.

Our attention has been turned to peat earth and peat ashes, at this time, particularly, by a late visit to Staten Island, where we saw their utility, as fertilizers of the soil, favorably developed in the practice of a gentleman, once distinguished in the business of the law, and now no less distinguished for his enlightened and systematic practice in the business of agriculture. He showed us the beds of several ponds or marshes, which he had drained, containing vast deposites of peaty earth, large quantities of which he was converting into manure, by some of the processes we have detailed, and also about 5,000 bushels of ashes which he had made recently by burning peat. His mode of obtaining the latter was as follows: He drained off the water to about three feet below the surface, and when the latter had become sufficiently firm, he went on with a six ox team, and turned ten or a dozen prairie furrows upon the outer edge of the deposite. As soon as the turf had dried sufficiently in the summer sun, he proceeded to construct the centres for his intended pits, by setting up a few sticks of wood and dry brush, at small intervals, around the border, like the centre of a coal-pit. Around these he piled his dryest turf, and having fired the interior, fresh turf was added, as circumstances seemed to warrant, till the pile became quite large. In this way, with comparative little labor, he had obtained his 5,000 bushels of ashes, which were principally intended as a top-dressing for his grass lands. So abundant did the gentleman consider his resources of fertility—in his peat earth and peat ashes,—his sea weed and his fish—in the dung of his animals, from his oxen to his poultry,—and in the litter and wash of his yards and kitchen—that he calculated confidently, and we believe on safe grounds, that he would be able to manure well one hundred and sixty acres of land annually.

These hints cannot but be acceptable to farmers on the seaboard; and the highly commendable example which we have given above, we trust will stimulate them thoroughly to try these neglected means of enriching their lands. We shall offer further remarks upon this subject in our next number.

Berkshire Cattle Show.—We attended the twenty-seventh anniversary of the Berkshire Agricultural Society, and witnessed with great pleasure the many demonstrations it afforded of the growing utility of that association upon the social, moral and intellectual condition of the county.—Its anniversaries have lost none of their interest—none of their usefulness. Perhaps three thousand people were present; and few, if any of them, we believe, went home without having acquired some useful knowledge in their business, or some new stimulus to useful exertion. We believe there is no district of our country which can boast of more and better schools than Berkshire, or that has sent abroad more and better teachers. This successful effort at intellectual improvement, we are persuaded, is in a great measure to be ascribed to the influence of her agricultural society upon the feelings and enterprise of her citizens.

BLIGHT IN PEAR TREES.

The Rev. Mr. Reed, of Poughkeepsie, has communicated to the Philadelphia horticultural society *his* mode of preventing the blight in pear trees; and we must confess his theory is a plausible one, and seems in a measure to be confirmed by his practice. It is to impregnate the soil about the tree with iron, where this mineral does not already exist, which is effected by putting a bushel of blacksmith's cinders about the roots of each tree. In several trials made by Mr. Reed, in the course of many years, the experiment uniformly succeeded, and the trees became healthy and productive. Mr. Reed also alludes to the practice of hanging old iron upon the branches, as a means of preventing blight. We remember to have seen this practised in 1802, in some cases with apparent success, and in others without any sensible benefit. This difference in result may have arisen from the circumstance, that in the successful cases the iron was highly oxidized, and of course was carried to, and blended with, the soil, by the rains; while in other cases this effect was not produced.

If iron is beneficial in preventing blight in the pear, it must be so in one of two ways: it is necessary as natural and essential aliment to the plant, or is destructive or offensive to some species of insects which prey upon and destroy it. We are yet inclined to the opinion that the blight is caused by animalcule, that is, insects too small to be detected by the naked eye, which subsist upon the sap, or at least vitiate and poison it. We know that a family of these insects has destroyed whole forests of firs in Germany, at different periods; and analogy would seem to authorize the conclusion, that there are species which prey upon the pear, and other kinds of trees. The trials which we have made of washing the bole of the pear tree with chloride of lime, though they do not positively confirm this opinion, go far to strengthen it. The presence of iron in the soil, as well as the application of chlorine to the bark of the tree, might impart to the sap a property obnoxious to the animalcule, and thus preserve the tree; besides so far as our observations have gone, ferruginous soils, or soils charged with iron, are most exempt from insect depredations. If we assume the other position, that iron is part of the alimentary food of the pear, and that blight is caused by the want of it, we are met by the formidable objection, that while the *cause* is radical and continuous, the *effect* is periodical or temporay. Natural causes always produce like natural effects.

Mildew on the gooseberry and grape.—We find in Mr. Reed's communication a suggestion in regard to mildew on the gooseberry and grape, which in a measure corroborates the correctness of the opinions we have heretofore expressed on this subject. The suggestion is, that salt will prevent the mildew on gooseberries, and probably on the grape. A pint of strong brine, put at the root of each plant in the spring, he informs us, has not only prevented mildew on the gooseberry, but has restored to the berry, before diseased and diminutive, its original size. All we object to is the mystical mode of application. "The brine should be put on without stirring the earth," says the Rev. writer, "so as [not] to wet the roots, as in that case it kills the plant, but there is no danger if poured on the earth undisturbed." The plain English of which seems to be, that the saline properties of a strong brine, if brought into immediate contact with the roots, will not only destroy the seeds of the parasyte, for such we consider mildew, but the vitality of the plant itself—the undisturbed surface arresting a great portion of the saline matter, which is subsequently carried down, by rains, in moderate quantities. This prescription is based upon the theory, that mildew, in the gooseberry and grape, is a parasytic plant, the germ or seed of which abides at the roots; that salt destroys the vitality of these germs or seeds; but that, when applied in excess, it also destroys the plant. The great object is, therefore, to graduate the remedy to the cure, and this would seem to be best accomplished, by applying the brine in winter or early spring, when the plant is dormant, and not absorbing the moisture of the soil—or in a very diluted form, when it is in the progress of growth. Partial experiments with the grape had induced Mr. Reed to believe, that a like application of brine to the grape, would produce results alike favorable.

AGRICULTURE IN KENTUCKY.

We like the Kentuckians. We like them for their chivalrous, disinterested patriotism—we like them for their ingenuousness and hospitality—and we like them, particularly, for their noble efforts to improve the great business of our country, and of mankind—the cultivation and improvement of the soil. In Kentucky agriculture holds a dignified rank, as it ought to do in every land of freedom; her most talented and opulent citizens make it their business and dependence, and soaring above the narrow prejudices of the day, seem resolved to demonstrate this great truth, that individual happiness is most efficiently promoted, by united efforts to increase the prosperity of all.

Kentucky is probably not surpassed by any state in the number and respectability of her agricultural associations; and we think she is certainly not surpassed by any in the number and excellence of her fine animals, nor in the means she is adopting to perpetuate and improve her choice breeds. Among the latter we observe an association to publish a Kentucky stock book, to contain at least two hundred quarto pages, and fifty engravings on stone of their finest animals. Contracts have been made with the best artists, and the work is already in progress. Such a work is new in our country, and until recently was even unknown in Europe. It will be of great service to the breeder and stock farmer, and must tend greatly to facilitate the improvement of our farm animals.

Draining Tile, are manufactured in this city by Mr. Jackson. They give an aperture for the passage of water of about four inches square, will lay one foot of drain each, and are sold at fifteen dollars the thousand. We have this year laid four thousand, and they promise to be durable and efficient. In using them, we have dug to the depth of two to four feet, as circumstances required to reach the water stratum, or source of wetness, laid the tile upon hemlock boards, and covered them, and particularly at their junction, with tough sods, grass down, and trod earth in at the sides, so as to prevent the passage of water elsewhere than through the aperture. We have then, where the soil was stiff, thrown in some brush, and filled up the trench. These precautions were deemed necessary to keep the drain in order, and to admit into it the water coming from the slope above. When stones cannot be had these tiles constitute an excellent material for draining, and in all cases, perhaps, they may be considered an economical one, if well laid.

The Potato.—It is said of the great Linnæus, that he preferred the Jerusalem artichoke to the potato, against which he had a botanical prejudice on account of its belonging to a poisonous genus of plants, (the *solanum.*) When long exposed to the sun, the potato is said to have become so poisonous as to kill cattle which ate them. In a clammy, watery state, as is the case with some of the coarser varieties, they are undoubtedly unhealthy—but the better, dryer kinds are wholesome and nutritious. The misfortune is, that one half of mankind do not enjoy, if they know, the luxury of a good, well cooked potato—they graduate their value by the quantity, and not by the quality of the product.

ADDRESS,

Delivered before the Berkshire Agricultural Society, at their twenty-seventh Anniversary, October 5, 1837, by J. Buel.—*(Concluded.)*

The object of the farmer, in the management of his farming operations, should be, first, to obtain the greatest return for the capital and labor he expends; and, secondly, to do this without impairing the fertility of the soil, or the intrinsic value of his farm. To effect these objects, three prominent rules should be observed:—The first is—KEEP YOUR LAND DRY; or in other words, free from all superfluous moisture. The second rule is—KEEP YOUR LAND CLEAN; or in other words, free from weeds. And the third is—KEEP YOUR LAND RICH; or in other words, return to it, in the form of manure, all the refuse animal and vegetable matters which the farm affords.

KEEP YOUR LAND DRY. The importance of draining is not duly appreciated, nor its practice well understood, among us. Although water is indispensable to vegetation, too much of it is as hurtful as too little.—It is necessary to the germination of the seed, to the decomposition of the vegetable matter in the soil—to the transmission of the food from the soil to the plant—to its circulation there, and to the maturity of the product. All these useful purposes are defeated, where water remains in the soil to excess—the seed rots, the vegetable matter which should serve as the food of the crop, remains insoluble, in consequence of the absence of heat and air, which the water excludes; or, if the seed grows, the plant is sickly, for want of its proper food, and there is consequently a virtual failure in the harvest. It is not from the surface only that we are to determine whether land is sufficiently dry to support a healthy vegetation; but we are to examine the surface stratum, into which the roots of the plants penetrate, and from which they draw their food. If this is habitually wet—if it grows marshy plants—if water will collect in a hole sunk fifteen inches below the surface—the land is too wet for cultivated crops, and means should be adopted to render it more dry. From my partial acquaintance with this county, I feel assured that much of your best land is rendered unfit for tillage, or the growth of the finer grasses, by reason of the excess of water, which passes or reposes upon the subsoil, unnoticed by the cultivator. These lands are denominated cold and sour, and they truly are so. Cold, sour lands are invariably wet lands below, if not upon the surface.. But if the superfluous water was judiciously conducted off by efficient underdrains, (for the construction of which, you possess the best of materials in abundance,) these lands would be rendered warm and sweet, and highly productive, and the outlay would be repaid by the increased value of two or three of the first crops. Wet lands are generally rich lands, abounding in vegetable matters, which water has preserved from decomposition, but which readily become the food of plants, when the water is drawn off. Let me imagine a case, which I am sure will be found to exist in many parts of your county. There is a slope of a hill, half a mile in extent, terminating in a flat forty rods wide, through which a brook meanders. The soil on this slope, and in this flat, is of a light, porous quality, six to twelve inches deep, reposing on a subsoil impervious to water, as clay, rock or hardpan. By soil, I mean the upper stratum, in which vegetable matters are blended with the earthy materials, and which constitutes the true pasture of plants. Near the top of this slope, all along on a horizontal level, or perhaps lower down, spouts or springs burst through the subsoil, a thing very common in hilly districts, the waters from which finding an easy passage *through* the loose soil, spread and run down the slope, and *upon the subsoil*, and through the flat, till they find their level in the brook. A thermometer plunged down to the subsoil, will indicate, at midsummer, a temperature probably not greater than 60°, whereas to grow and mature many of our best farm crops, we require a heat in the soil of 70° or 80°. How shall we remedy this evil, and render this land profitable to the occupant? Simply by making an underdrain or drains, in a gently inclining direction, a little below these spouts or springs, and, if practicable, somewhat into the subsoil. These will catch and conduct off the spouting waters, and by laying the lower plane dry and permeable to heat and air, develope all its natural powers of fertility.

I will suppose another case—that of a flat surface, underlaid by an impervious subsoil. This is rendered unproductive, or difficult to manage, by *stagnant* waters. The rain and snow waters, penetrating the soil, are arrested in their downward passage, by the subsoil, which not having slope to pass them off, they here remain, and stagnate, and putrify, alike prejudicial to vegetable and animal health. The mode of draining such grounds, and of rendering them productive and of easy management, is, first to surround the field with a good underdrain, and to construct a sufficient open drain from the outlet to carry off the waters. Then with the plough, throw the land into ridges of twenty to thirty feet in breadth, according to the tenacity of the soil, in the direction of the slope, and sink an underdrain in each of the furrows between the ridges, terminating them in the lower cross drain. The materials of the underdrains, which are generally stones, should be laid so low as to admit of the free passage of the plough over them. The superfluous water, by the laws of gravitation, settle into these drains, and pass off, and the soil becomes dry, manageable and productive. An acquaintance called upon a Scotch farmer whose farm had been underdrained in this way, and being informed that the improvement cost sixteen dollars an acre, tile having been used, remarked that it was a costly improvement. "Yes," was the farmer's reply: "but it costs a deal mair *not to do it*," which he illustrated by pointing to an adjoining farm, like situated, which had not been drained, and was overgrown with rushes and with sedge grass, and then to his own fields, teeming with luxuriance, and rich in the indications of an abundant harvest.

I have dwelt upon the subject of draining with more detail, because I have personally realized its benefits, and am sure it may be extensivly gone into with the certain prospect of reward.

KEEP YOUR LAND CLEAN. Weeds being generally indigenous, or well acclimated, are gross feeders, and exhaust the soil more in proportion to their size than cultivated crops. We should consider that farmer a reckless manager, who should suffer strange cattle to consume the food prepared for his farm stock. How much more is he deserving the name of an economist, who permits his crops to be robbed of their food, and consequently stinted in their growth, by thistles, daises, dock and pigweed?

An idea prevails with some, that weeds, by the shade they afford to the soil and to crops, prevent the exhalation of moisture in times of drougth. Precisely the reverse is the case. They exhaust the moisture of the soil in proportion to the surface of their leaves and stems. Some plants, it is affirmed, daily draw from the earth, and exhale from their superficies, more than their weight of moisture.

KEEP YOUR LAND RICH. This is to be done by manuring, by pasturing and by alternating crops. Most of this county, I believe, is devoted to cattle and sheep husbandry, for which it seems well adapted; and these branches of husbandry afford ample means of enriching the soil and of enlarging the grain and root crops. Cattle and sheep make manure—manure makes grain, and grass, and roots—these in return feed the family, and make meat, milk and wool; and meat, milk and wool are virtually money, the great object of the farmer's ambition, and the reward of his labors.—This is the farmer's magic chain, which, kept bright by use, is ever strong and sure; but if broken or suffered to corrode by neglect, its power and efficiency are lost.

You possess all the earthy elements of a good soil—clay, sand and lime. It is *your* province and *your* duty to husband and apply the vegetable, and most essential element of fertility—MANURES. These are as much the food of your crops, as your crops are food for your cattle, or your family; and it is as vain to expect to perpetuate good crops without manure, as it would be to expect fat beef and fat mutton, from stinted pasture or buckwheat straw. We see, then, that manures are the basis of good husbandry, whether we have reference to tillage or cattle farms; and that tillage and cattle reciprocally benefit each other.

It results from these facts, that a farmer should till *no more land than he can keep* DRY, and CLEAN, and RICH; and that he should *keep no more stock than his crops will feed well, and that can be made profitable to the farm.*

The farmer who makes but thirty bushels of corn, a dozen bushels of rye, or a ton of hay, from an acre of land—and there are not a few who fall short of this—is hardly remunerated for his labor: but he who gets these measures from half an acre, and every good farmer ought at least to do so, realizes a nett product of one half the value of his crop, or receives twice as much for his labor as the first does. The reason of this is, that the one permits his acre to become poor, either from not saving and applying his manure, or from spreading it and his labor over too much land, or by cropping it too long, while the other keeps his land rich, and thereby saves half his labor. How is this disparity increased, when, instead of being double, the crop of the good farmer exceeds that of the bad farmer four-fold, incidents that very often happen on adjoining farms? If the latter gets one hundred dollars per annum for his labor, the former gets four hundred dollars for his labor. No inconsiderable item this, in the aggregate of a man's life, or in the profit and loss account of a large farm.

So with our animals. The food which parsimony, or indolence, or ill judged economy, doles out to a beast, and which barely *keeps* him two years, would, if judiciously fed out, fatten him in six months; and thereby convert three quarters of the food into meat, milk and money, which, in the other case, is expended to keep the animal alive. Time is money, as well in fattening animals and feeding crops, as in other expenditures of human labor.

Pasturing is a means of inducing fertility. It is computed to add twenty per cent, to the fertility of a first rate soil. This arises from two causes. All that is grown upon the soil, is returned to it in the droppings of the animals which graze upon it. And in the second place, when broken up by the plough, the sward is converted into food for the tillage crops, and has been found to be equivalent, in a well set sod, to more than twelve loads of dung on the acre. In this way sheep husbandry is known to enrich lands rapidly. But this remark does not apply to meadows where the crop is carried off, and no equivalent returned to the soil, in the form of manure.

Alternation of crops is unquestionably one of the best and most economical means of preserving fertility, and of increasing the profits of the farm. All crops exhaust the soil more or less, of the general elements of fertility, though all do not exhaust to the same extent, nor do all exhaust it alike of certain specific properties. It is believed that every family of plants requires a specific food, which other families do not stand in need of, and which they do not *take up*. This is evidenced by the fact, that wheat cannot be grown profitably, in ordinary grounds, in two successive years, upon the same field, without a great falling off in the product. And it is now laid down as an axiom, in good husbandry, that two crops of any small grain should never be taken from the same field in successive years, because they draw too largely upon the same specific food.—But after an interval of four or five years, in which grass and roots intervene, the specific food of the wheat crop has so accumulated in the soil that this grain may then be again profitably grown upon it. So with all other farm crops, not even excepting the grasses. The law of natural change in the products of a soil is so palpable, that in Flanders and Holland, where flax is one of the profitable staples, they do not think of cultivating this crop upon the same ground oftener than once in ten or twelve years.—Our farmers seem to appreciate these truths in reference to tillage crops, without duly reflecting, that they apply as well to grass as to grain.—Meadows do deteriorate; in a few years the finer grasses run out, because the soil becomes exhausted of the particular food which affords them nourishment; coarse or innutricious plants take their place, and the herbage becomes inferior in quality and greatly diminished in quantity. Upon an average, old established meadows would yield double their present crops, if judiciously alternated with grain and root crops. The terms "suitably divided into meadow, plough and pasture lands," which are generally employed to recommend farms on sale, are an indication of bad husbandry, and very often betray the secret which compels the owner to sell. Excepting in very stony districts, every acre of land which will produce good grasses, may, by being rendered dry and rich, be made to produce good grain and roots. In the convertible system of husbandry, permanent meadow or plough lands are almost unknown—every field produces in turn, crops of grain, grass and roots.

There are three classes of crops which alternate beneficially with each other, viz:—1st. Grain, or corn, or dry crops, which mature their seed, and most exhaust the fertility of the soil;—2d. Grass crops, of the influence of which upon the soil, I have already spoken; and 3d. Root or green crops, embracing turneps, potatoes, beets, clover, &c. In old meadows and pastures, not only the better grasses disappear and coarse herbage and mosses come in, but the soil becomes too compact and hard, to admit the free extension of the roots, and the genial influence of the sun, dew and atmosphere, which are primary agents in the process of vegetable nutrition. Tillage corrects these evils. It cleans the soil of foul weeds, and converts them into sources of fertility; it breaks and pulverizes the soil, and fits it for the return of the grass crop at the close of the rotation; while the vegetable matters of the sward contribute to augment the grain or root crop which is to follow. All green crops are more or less fertilizing, when buried in the soil; but clover is to be preferred, as well on account of its enriching properties to the soil, as that it also affords hay and pasture. I have practised sowing clover seed with all my small grain crops, though I intended to plough the field the following year. The food which this clover affords to the coming crop, richly compensates for the cost of the seed and sowing, to say nothing of the pasture it gives in autumn. Hence, tillage is admirably calculated to fit and prepare the ground for grass: while grass, in return, directly or indirectly furnishes an abundance of food for grain and roots. The fertility of a soil depends essentially upon its power to absorb water by cohesive attraction, and this power depends in a great measure upon the state or division of its parts; the more divided they are, the greater is their absorbent power. The crop upon a hard, compact soil, will suffer from drought; but if this soil is finely pulverized and broken, it will suffer much less. The first may be compared to the rock, which receives moisture upon its surface, and upon its surface only; the latter to the sponge which receives and transmits moisture to its whole mass, and which retains it for a long time.

I will close my remarks upon the farm, already too protracted, I fear, for the patience of my hearers, by a brief reference to the prominent crops which seem adapted to the soils and climate of Berkshire.

Although your soils contain sand, and clay, and lime, three prominent requisites for the growth of wheat, yet they do not seem adapted to the profitable culture of this grain—they do not enable you to compete successfully with the great wheat districts of the west. This grain may be grown for family use, but I doubt whether its culture can be made profitable here, as an article of commerce; when cultivated, however, the spring varieties are to be preferred to those of winter, as being less exposed to the vicissitudes of the seasons, and the ravages of insects, and consequently more certain in their returns.

Indian corn is as indispensable to the Yankee, as the potato is to the Irishman, or the oat to the Scotchman. It is not only meat and meal to his family, but it is food for his cattle and manure for his land. It is therefore a very desirable crop, and hence it is often cultivated at an absolute loss. It requires a great outlay of labor; yet if the soil is dry, and clean, and rich, and the season propitious, few farm crops make a better return. It should never be planted, in this latitude, upon wet or cold, or poor lands. The shortness of the summer is a serious objection to its culture. There are several things, however, which may be done to obviate, or at least to lessen, this objection. The early varieties ripen a fortnight earlier than the late varieties. By making the land dry, we may raise its natural temperature. By the liberal use of unfermented manure, spread and well turned under by the plough, the warmth of the soil may be farther increased, and the growth and maturity of the crop thereby accellerated. If the surface be flat, and the crop likely to suffer from heavy or protracted rains, throw your land into ridges for three rows, or into narrow ridges for one or two rows, which will render it more dry and warm. In the culture of this crop, I have found the harrow and the cultivator, far preferable to the plough. The latter cuts and bruises the roots, which are ordinarily of greater length than the tops, wastes the manure, and robs the plants of more than half their pasture. Earthing or hilling the plants, is also in a great measure dispensed with in modern husbandry—it being found that good culture consists in merely keeping the ground clean, and its surface mellow and open to atmospheric and solar influence. In harvesting, it is decidedly best to cut the crop at the ground, at the ordinary time of topping it, when the kernels have become glazed, and immediately to set it in stooks to dry and mature. The advantages of this practice are, first, it secures the grain and fodder from the injurious effects of early frost; 2dly, it gives more and better corn than when topped in the old mode; and lastly, it affords much more and far better fodder than any other mode of harvesting. The laws of vegetable physiology show, that the elaborated or *descending* sap of plants, constitutes their true and only food, and hence corn can receive no accession of growth, after it has been divested of the leaves, the elaborating organs, which grow above it. It is equally apparent, that when the stalk and grain are cut up together, the latter continues to draw elaborated food from the former for some time after it has been severed from its root. By attention to these matters, I have escaped all injury from frost to my own crop, for the last seventeen years, and have not yet been disappointed in obtaining a good—an abundant harvest.

This county, I think, is well adapted to the cultivation of oats. But oats, like store pigs, are too often left to shift for themselves, or to take up with what nothing else will thrive upon. From the abundant product which they yield to good culture, their exemption from disease and insect enemies, and the uniform high price they command in the market, I venture to recommend an increased attention to their culture, particularly on cold, moist lands, for which they are particularly suited.

Root culture seems well adapted to your soils, your climate, and your principal business—the rearing of cattle and sheep. This is emphatically the potato, the turnep and the beet zone—the potato on the stiffer soils, the ruta baga on those of a sandy or gravelly texture, and the beet on those of a loamy or medium grade. And they are all excellent for thriving on fresh manure, and of fitting it to become the proper food for your grain crops. They yield the greatest amount of food for animals; they ameliorate the soil, by pulverizing and cleaning it; they add much to the manure of the farm; and they alternate remarkably well with grain and grass in the system of convertible husbandry. In the culture of these crops, hand-hoeing may be in a great measure dispensed with—the plough and the harrow being principally employed in cultivating the potato, and the drill barrow and cultivator or horse hoe, in sowing and cultivating the Swede and the beet. A good dressing of manure will add from forty to fifty per cent to the value of these crops.

I cannot speak in too high commendation of the Swedish turnep, or ruta baga, particularly to the cattle and sheep farmer. It has never disappointed my expectations. I have readily converted it into meat and milk, and ever found a demand and a fair price for it in market. The tops afford a rich food for cows and other neat cattle, in late autumn. Secured in cellars, the roots may be fed to stock during winter; or, if buried in the ground, they may be commenced upon in March and fed till June. They give a great flush of milk to cows, without imparting to it, where the animals have daily access to salt, much unpleasant flavor. The horse and the hog feed and thrive upon them; the ox will fatten upon them, fed with two bushels a day, and a trifle of hay or straw; and they are invaluable for sheep in the winter and spring, particularly to milk giving ewes. Six hundred bushels to the acre may be deemed a medium crop, under good culture, though the product has been known to exceed this quantity threefold. The ruta baga requires a loose, rich, dry soil.

The mangold wurzel has been highly commended by those who have cultivated it successfully; but my experience with it has been but limited, and my success not flattering. It demands more labor than the ruta baga, is less certain in its growth, and does not keep good so long. But it may be grown on loams that are too tenacious for the Swedes.

The sugar beet may be cultivated as easily as the mangold wurtzel, yields nearly the same product, and its culture is about as profitable, for cattle food and for ameliorating the soil, as the latter. But when we consider its value as a material for the production of sugar, I cannot but consider its introduction among us, as a farm crop, as forming a new and an auspicious era in our husbandry. All beets abound in saccharine matter, but the white Silesian is denominated the sugar beet, on account of its diminutive, or rather medium size—it having been ascertained, that the juices of the smaller roots are more concentrated, or abound more in sugar, than the juices of the larger growing varieties. The culture of the sugar beet has but commenced among us, and little or no preparation has yet been made for the manufacture from it of sugar. I have perfect confidence, however, that this will soon be done, and that the farmers of Berkshire will ere long find a sure and liberal profit in the culture of the sugar beet.

There are many other topics, connected with the prosperity of the farmer, and through him with the best interests of the country, which I should like to discuss, did time permit; but I forbear; and will close with some admonitory hints, to the young class of my audience.

Young farmers of Berkshire! You are soon to fill the places occupied by your fathers. Upon you will devolve, not only the charge of this society, which has been so far sustained with praiseworthy zeal, and great public usefulness, but the welfare and character of the country. Your situation will soon be one of great responsibility. As you sow, so you must reap If you fail to deposite the good seed in the spring time of life, the olive will yield you no oil, nor the fig-tree its fruits, in the summer of manhood; the harvest of autumn will disappoint your hopes, and a cheerless winter of age will come upon you, embittered by regrets of neglected opportunities of providing comfortably for yourselves, and of doing good to others. You have before you worthy examples, in the industry, enterprise and intelligence of your fathers. But neither talents, nor wealth, nor virtues are hereditary. You must build upon your own foundation—you must become the artificers of your future fame and fortune. You must yourselves enrich your minds, sow the seeds and mature the good plants, if you would reap the abundant harvest, and enjoy the reward. The elements of education which you have gathered in the schools, are the paper upon which you are to record your characters—the mere implements of usefulness. They will profit you only as you use them with diligence and good judgment. But the standard of your acquirements must not be graduated by the past. Every age demands a greater degree of mental culture, than the one which preceded it; and it behooves you to qualify yourselves for that which now dawns upon your mental vision. The more you learn to depend upon yourselves, the more you will find developed capacities and energies, of which you are yet unconscious of possessing—the more likely you will be to prosper in life. The sapling which is sheltered by the towering pine, or wide-spreading oak, is neither so strong nor so graceful, as that which grows up without shelter, and acquires strength and solidity from the buffetings of the winds and storms. The plant that is nurtured in the shade is not so beautiful—its blossoms are not so fragrant, nor its fruits so rich, as the form, the flower and the fruit of that which grows in the glare of solar light.

The culture of the mind should engage your early attention, that you may sooner profit by its counsels and its powers. Mind is the great master power, which instructs, guides and abridges human labor—the grand source of intellectual pleasure—a faculty which distinguishes man from the brute, and which, as it is more or less cultivated, marks the gradations in civilized society. Say not that you have no leisure for this, tnat your time is engrossed in providing for your *animal* wants. Franklin found time to bestow upon his mind, high and useful culture, amid the cares and labors of an active mechanic's life. The hours that the avocations of the farm allow to study, amount, in the aggregate of early life, to months and to years. Knowledge is power; it is wealth; it is respectability; it is happiness; it endures with life. The mind may be likened to the soil. Both are given to be improved; and the measure of our enjoyments, and the welfare of society, depend upon the good or bad culture we bestow upon them. Indolence may be compared to the coarse marsh plants, which feed upon the soil and taint the air, without yielding any thing comely or useful in return, for man or beast;—intemperance, to broken down fences, which permit beasts to enter and consume the earnings of industry, and beggar the offspring of the owner;—litigation, to the thorns and thistles, which rob the soil of its fertility, and mar the beauty of the landscape. While, on the other hand, the faithful application of knowledge to the useful purposes of life, may be likened to the draining and manuring, which give fertility to the soil; the good habits which we establish, to the good culture bestowed by the husbandman—-indicative alike of cheerfulness and plenty;—and the embellishments of the mind in literature, science and taste, to the gardens and grounds, abounding in all that is grateful to the senses, which should surround and adorn our rural dwellings, and beautify the country.

You have chosen an employment which is honorable, profitable and independent. Devote to it your best powers, till you have become master of the art, or of such branches of it as you design to follow—and until you have acquired so much of the science—a knowledge of the why and the wherefore—of the great laws of nature, upon which good husbandry is based, as shall enable you to conduct your operations with judgment and success. "Who aims at excellence, will be above mediocrity; who aims at mediocrity, will fall short of it." So the adage teaches, and so is the response of experience.

And finally, fellow-citizens, may you all be wise—all be useful—that you may all be happy—here and hereafter.

EXPERIMENTS.

Our highly respected friend, Judge Bradley of Onondaga, has instituted a series of experiments, during the last summer, to determine the effects of steeps at different temperatures, upon seed grain and pulse, &c. and has published the results in the Genesee Farmer. We give an abstract.

1. Oats were dropped into a pail of strong brine. They all floated. A like parcel dropped into water not saturated with salt, sunk. Conclusion—oats may be easily and safely separated from spring wheat by throwing the grain into strong brine.

2. A parcel of chess was thrown into brine, and a part of it sunk Conclusion—chess cannot be separated from wheat in this way.

3 & 4. Twenty kernels of wheat were put in strong brine fifteen minutes—eighteen of them grew. Twenty kernels were steeped in like manner twenty-four hours, and seventeen of them grew. Conclusion—seed wheat may be steeped twenty-four hours in strong brine without impairing the vegetating power.

6 to 8 were experiments made in steeping peas in scalding water from one to three minutes, which did not seem to impair their vitality.

9 & 10. Scalding water poured upon seed corn *did* impair its vitality. In one experiment the water was turned off immediately, in the other it was left upon the grain one minute. The grain mostly came up, but tardily, and the plants had a sickly appearance. Conclusion—seed corn should *not* be saturated with scalding water. As the object of steeping this seed is to saturate the grain, and induce early germination, water of a tepid or warm temperature, would seem to be preferable to that which is very hot.

12. Twenty kernels of wheat were put into boiling water one minute, and none of them came up.

13. Twenty kernels of badly blasted wheat were planted, and nearly all of them came up.

The best test of good farming is this—that every successive crop is better than the one which preceded it, and that the profits of the farm labor are annually increasing. A farmer who can realize these prospects is doing well. His land and his purse are improving. And he should never hazard this certainty, and the comforts which it confers, for wild experiments, or hazardous speculation.

But whenever, on the contrary, the crops are annually diminishing, the reward of labor is necessarily diminishing also; and it may be pretty generally inferred that both the soil and the purse are under the exhausting system.

A Tennessee Farmer.—"My farm," says Jacob Hughes, in a letter to the editor of the Tennessee Farmer, "contains between eighteen and nineteen hundred acres. I cultivate about two hundred acres in corn; about twenty in meadow; about one hundred in wheat and rye, and the balance is in pasture. I work ten hands. My farm is what we call here a grazing farm. I buy, graze and feed about three hundred cattle annually; raise and sell about two hundred hogs. My profits on cattle, hogs and other articles sold off my farm in 1835, were $9,945, and in 1836, $10,475."

The Buckeye Ploughboy, is the title of a new agricultural journal just commenced at Cayahoga Falls, Ohio, by Richard Fry. It is published monthly in numbers of sixteen pages 8vo. at fifty cents a year.

The *Family Newspaper and Domestic Monitor*, is the name of a weekly paper, to be published in this city, at three dollars per ann. under the editorial direction of Solomon Southwick, Esq. We have no doubt but this paper will be one of great usefulness to the family circle; and that the circulation of family and agricultural papers is calculated to effect a salutary influence upon the industry and morals of the country. Subscriptions to the Family Newspaper are received by *Alfred Southwick*, the intended publisher, at the Elm Tree Press, corner of State and North Pearl-streets, Albany.

To Correspondents.—We intend, at the commencement of our next volume, to comply with the request of "A subscriber," whose favor is post marked Hudson, and to explain fully what we mean by the *new system of husbandry*.

Obituary.—*Died*, recently at Boston, Thomas G. Fessenden, for fifteen years editor of the New-England Farmer; and recently, in Tennessee, Judge Emmerson, editor of the Tennessee Farmer. Both of these journals will be continued under the management of competent conductors.

CORRESPONDENCE.

THE GRAIN WORM.

J. Buel Esq.—Sir—The first that I knew of this insect doing any considerable damage was in 1833, and the extent of damage that year I cannot ascertain. I had a field of about five acres of summer fallow wheat that was materially injured; and there were other fields in the vicinity which were said to be injured likewise. The insect was called the weavel. Since that year I have not seen nor heard of its ravages till this year. I have heard of its ravages in the southern part of this county, to what extent I know not. I did not discover the worm in my wheat until harvest, when I found the grain light, and on the suggestion of a man in the field, I looked and found the cause. Many heads were wholly destroyed, and the worm had left: while other ears contained worms, some more and some less; and on threshing some of the wheat soon after housing, there were worms among the wheat, until disturbed by the flail, continuing their depredations; but they soon disappeared. As to the character of the worm, in its several transmigrations, it appears different from most insects that inhabit the air. Those worms that feed on vegetables and people the air in their perfect or insect state, deposite their eggs late in summer or autumn, and they appear in the worm state in the spring, and commence their depredations early in the spring or summer: but this worm does not appear until the wheat begins to form in the ear; the fly is supposed to make its appearance about the last of June. From these facts I should be led to believe that it lies in its chrysalis state during the winter, and appears the fly in June or later, according to the temperature of the air. The chrysalis probably is formed in grass or other vegetable matter near the ground, and an exposure to light and heat is necessary to bring forth the insect: perhaps ploughing in the stubble may be a preventive, by burying the chrysalis in the ground and excluding it from light and heat; this was my management in 1833, the stubble was ploughed in and sown to winter wheat; the worm did not appear next season. As to this being a new species of insect I must differ from others, as I suppose I have seen it in small numbers at certain periods for more than thirty years, and I am led to believe that it is the same which is frequently seen in the pea pods preying upon the tender pea. I do not recollect ever seeing it in barley or oats, but think I have seen it in rye. As to the destruction of the worm entirely, I suppose it is as impossible as it would be to subvert those laws of nature, which brought it into, and keeps it in existence; for when God cursed the ground for man's sake, he not only produced briers and thorns, but put in requisition the insect tribes, that he who cultivates the ground should not only have scope for bodily exertion, but that the energies of his mind might also be put in requisition to obtain his daily bread. Having made these observations and already suggested the propriety of ploughing as a preventive, I should like to be informed whether the worm has committed equal ravages on wheat sown on stubble grounds as on summer fallows: this may be thought needless, as the worm is said to prey upon spring wheat; but I think it is probable if the worm lies in chrysalis during the winter, that it comes forth early in the spring, or it may be assumes the bug form before it appears in a flying insect, like the dragon fly, and the locust. If this is the case probably spring ploughing would not be early enough to prevent its appearance. As to early sowing of winter wheat, and late sowing of spring wheat, perhaps it is worthy of an experiment; but it must be as a matter of consideration, that insects generally are produced only by a certain degree of heat, and that they vary in coming forth ten or twelve days, in the same temperature and even the same species. This is known to be the case with the silkworm. And there is another consideration; harvest does not come to maturity at the expiration of a certain number of days every year, but may vary fifteen or twenty days, as it did this year. Therefore I would say, with the inspired penman, "in the morning sow thy seed, and in the evening withhold not thy hand, for who knoweth which will prosper, either this or that, or whether they both will be alike good;" that is give all diligence to be prepared to sow at the proper season, if the weather and other circumstances permit, but remember the old adage "better late than never." One observation more; insects generally are periodical in their appearance and depredations; not that they fulfil a certain number of years exactly, or that they appear but one year at a time; sometimes they continue several years in succession, and then disappear for a season; at other times they will appear and bear destruction with them for one season, and not be seen again for a number of years, as was the case with the Palmer worms, (so called,) that appeared in this vicinity, in 1831. With these facts before us, let us use every exertion to find a relief from the ravages of those insects we cannot destroy; relying on the blessing of a bountiful Providence. Industry and perseverance will do much, so much indeed, that "seed time and harvest will not fail;" and the poor of our land will be satisfied with bread.

Yours respectfully,
ASA CARTER.

Champion, Jefferson county, Sept. 28th, 1837.

GRAIN WORM, &c.

Stamford, Delaware county, October 1.

The grain worm, about which you inquire in the September No. of the Cultivator, has made its appearance in this vicinity, but it has done so little harm, that I probably should not have noticed it, had I not seen its ravages in Schoharie, and examined several pieces of wheat in this neighborhood, to ascertain whether it was here or not. I found but very few of the worms, and those were in spring wheat, some of which was sown about the first of May, and some as late as the 15th of the same month.

There was very little winter wheat sown in this place last season; but spring wheat and oats are uncommonly good. The latter are becoming an important crop to the farmers in this county, owing to large quantities being kiln-dried, ground, and the oat-meal made into hasty-pudding, which I believe is generally considered fully equal, if not superior, to that kind of "hasty pudding," whose praise was so well sung by Joel Barlow.

Yours in haste,
A. COWLEY.

COTTON.

J. Buel, Esq.—Dear Sir—Although cotton, as we learn from Pliny, was cultivated at an early period by the ancients; yet it is scarce thirty years ago since this valuable plant began to be grown extensively in the United States. But now our cotton commands the highest prices, both at home and abroad. Besides the increasing demand for domestic consumption, thousands of bales are exported annually, especially to Great Britain, and returned in those beautiful fabrics for the production of which her ingenious manufacturers are so justly famed. Hence the raising of cotton has, in the southern section of our Union, become an extensive and a lucrative trade.

I have read several articles on the subject, but they have all appeared unsatisfying; partly because they were confused, but principally because they were not founded on *practical data.* My object, therefore, in addressing you is, through your widely circulated journal, to solicit from some of your experienced cotton-growing correspondents, clear and concise answers to the following queries, viz.:

1. What soil and climate is the most suitable for the culture of cotton?
2. What kind of seed is found in the southern states to be the most productive and profitable?
3. What is the best method of, and the best time for planting?
4. What tillage must precede and succeed the planting? Can two crops be obtained in a season?
5. When, and how should it be gathered; and how can it be most expeditiously cleaned, pressed and prepared for manufacture or exportation?
6. What is the fair average yield, the cost of culture, of bagging, of machinery, &c. and the nett profit per acre? A numerical statement is desirable.
7. To what dieases is the cotton plant of our country liable; and how may they best be remedied?
8. Is the soil and climate of East Florida, say 50 miles southwest of St. Augustine, adapted to the growth of cotton; and what kinds?

Should the above queries meet the eye of any practical and experienced planter, he will, by answering them, not only confer a favor on many of his brother planters, but will, at the same time, encourage the growth of an invaluable domestic staple.

Each succeeding number of "The Cultivator" I peruse with increasing interest and gratification. The contents are alike varied and instructive—pertinently illustrating its excellent motto, "TO IMPROVE THE SOIL AND THE MIND." It should, therefore, be the manual of every farmer—the directory of every gentleman who would cultivate the soil.

Yours respectfully, L*.

Princeton, (N. J.) 16th Nov. 1837.

SIBERIAN SPRING WHEAT.

Utica, November 10th, 1837.

Mr. Buel,—The lively interest that you have heretofore manifested in relation to the wheat crop, which holds such an important rank in agriculture, induces me to furnish you with some additional remarks, which I have gathered from another year's experience with the Siberian spring wheat.

The first week in May I sowed six bushels of clean seed upon four acres of ground, which had lain to pasture four or five years, and planted with corn upon the furrow the preceding spring—the corn gave a poor return, on account of the unpropitious season—the character of the season past, and the condition of the ground, were both favorable—the growth of the crop corresponded. I saw it several times during the summer, and was (perhaps too much) gratified with the prospect of the final result. I was at the farm about the middle of July, when the process of vegetation was in its pride, and the kernel in that stage which the farmers denominate the milk; a cloud came over the field with heavy thunder, much rain and more wind, which prostrated the whole crop, and that in all directions. From this disaster (occurring when in fullest leaf, and perhaps heaviest head) it never recovered but partially. We however harvested some of it with the cradle, but much more with sickles, and with all a sad and wasteful gathering necessarily resulted, and from its long prostrate condition, much of it over the whole field was shrunk more or less, according to the degree of prostration. From waste and shrinkage I apprehend we could not have suffered less than ten per cent loss, besides it was all threshed during the rainy season of the last week in October, and the first week in November, by which we suffered some further loss; and yet amid all these drawbacks, we obtained between thirty-six and thirty-seven bushels to the acre. The seed, when sowed, was remarkably clean, berry full and perfectly dry, and weighed sixty-eight pounds to the bushel. So much for the productiveness.

By way of experiment as to time of sowing, and different strengths of soil, I reserved a small quantity of seed, and sowed one part of it the middle of May, on the side of my pea-field, on land originally good, but much exhausted by at least ten years' tillage, without a holiday. This was a fair growth, bright straw, and fair berry, and was, I should judge, equal to twenty-four bushels to the acre.

The remainder of the seed I sowed adjoining my white bean crop, on land not long in tillage, but naturally thin and unproductive. The straw grew well, and I began to think the Siberian wheat would grow on any soil, and might be sowed at any time, but at the harvest I was corrected; the straw, although not rusty, yet totally destitute of lustre, and the heads were poorly filled, and kernels badly shrunk.

The foregoing comparisons are Siberian with Siberian. I will now add a few observations, comparing Siberian with Italian and other kinds of wheat.

The proprietor of the farm adjoining me on the south, took much pains to obtain, from a neighboring county, the Italian spring wheat. At a distance of, say fifty rods, south of my field, he sowed about three acres, at or nearly the same time that I sowed my first piece, and like mine, after corn, and in fine condition. His was a far less growth, and some time before harvest it was (as farmers say) struck with a rust, which so far shrunk the kernel that he did not harvest all his field.

The proprietor of the next adjoining farm to the one last mentioned, still south, obtained from me seed for one acre, (which was all I could spare,) he also procured from the last mentioned farmer Italian seed for two acres more. He sowed the two kinds the same day, side and side, in good season and fine order, and like his neighbor's and mine, after corn. The grow of the Siberian was perceptibly the most luxuriant; the straw bright and lustrous, the berry full, whilst the Italian was very rusty, with some smut, and the kernels badly shrunk. The proprietor judges that the Siberian will give him at least double the number of bushels per acre, and of double value per bushel.

The proprietor of the farm adjoining me on the east, sowed of the same Italian seed, about six acres, like all the preceding pieces, after corn, in fine season and good order, land somewhat exhausted by tillage; it was on the road side. I saw it several times during the summer, the growth middling, but as the harvest approached it lacked lustre, and the berry was not full. I should judge eighteen bushels per acre is all that can be expected from the field.

I furnished a Quaker friend in my vicinity with a bushel of seed. He then informed me that he had procured a bushel of very highly recommended Italian seed from an adjoining town, together with another bushel from a still different source, the name of which he could not recollect, in order to test their comparative merits. Last week he called upon me to let me know (as far as he could before threshing) the results. He said he sowed the three kinds the same day, on the same soil with the same tillage. The growth of straw not materially different the forepart of the summer, although evidently in favor of the Siberian as the harvest approached. The Siberian came in with a bright and lustrous straw, with full heads and plump kernel, but a few days later than the other kinds. The Italian almost ruined with smut. The other kind the straw very rusty, kernel badly shrunk, with some smut. He says he thinks he shall thresh nearly or quite forty bushels from the one bushel of Siberian seed.

One comparison more, and "although last perhaps not least." In the same field with my Siberian, I summer fallowed seven acres, and sowed the previous fall with winter wheat. It suffered severely by the winter, but after a long time there began to show some surviving plants, which spread and grew luxuriantly, and finally gave a return, as we judge, (not having threshed only as we have wanted for use,) twenty bushels per acre. This part of the field was protected from the storm, which prostrated the other, by a wood on the westerly side. About ten days before harvest it was overtaken by a rust, remarkably dark, but came too late to affect the berry. It was surprising to see, side and side, (for they were not even separated by a fence) the straw of the one kind as white as silver, and the other as brown as that of buckwheat. Another fact which claimed my attention, was that of a strange bug, of the size and shape of a bed-bug, having wings encased, but showed no disposition to use them. They were astonishingly numerous, covering literally the straw near the heads of wheat, and thick upon the heads themselves, but not a bug on the Siberian to be seen. Whether those are the harbingers of the grain worm or not I do not know, but whatever be his errand he has no message for the Siberian.

THOMAS GOODSELL.

Remarks.—The above communication from our friend, Dr. Goodsell, goes to assert a very important fact, viz. that the straw of the Siberian spring wheat escapes the rust, where the Italian and other varieties are subject to it. This fact, if confirmed by future experiments, is of invaluable importance to the farmer. We have had but one opportunity of comparing samples of the Siberian and Italian wheat, of the crop of the last season, and in this case, we confess, the superiority seemed rather in favor of the former. Whether this arose from the effect of rust on the Italian, and from the Siberian being exempt from this malady, or from difference in soil, we are not prepared to say. We should like to satisfy ourselves as to the relative merits of the two kinds of wheat; and if Dr. G. will send us a bushel of Siberian seed, we will make the experiment fairly, and publish the honest result. ☞ Siberian and Italian wheat may be had at W. Thorburn's Seed-store.—*Cond. Cult.*

VALUE OF APPLES.

J. Buel, Esq.—Sir,—Having made an experiment in feeding my fatting hogs thus far with apples the present fall, I am so well pleased with the result, that you are at liberty to make the communication through the Cultivator to your subscribers, as to my manner of preparing them for feeding. I have a two barrel chaldron set for boiling, with a cover to prevent the escape of the steam, which I fill with apples, adding two pails of water, and after boiling a short time, the apples become settled, so that I add from two to three bushels of cut pumpkins. When all becomes soft I add one bushel of ground feed, (peas and oats mixed,) generally by putting it immediately, or soon after, into the chaldron and well mixing it together, by which means the ground feed becomes perfectly cooked. After remaining a few hours, I have it placed in half hogsheads, where it remains from thirty-six to forty-eight hours before it is fed; by that means it has a perfect chance to ferment, which I consider very essential. It is true I have not compared weights with other years, but as far as my eye is a judge, I never had hogs do better for the same length of time in any former year, when I have fed them boiled potatoes, adding the same quantity of ground feed; and am satisfied that even sour apples are worth as much as potatoes in fattening pork.

Much has been said through your valuable paper as to the saving made in cutting straw and hay for fodder. I wish to inquire through the Cultivator, whether straw is fed to neat stock, when cut, without any mixture, such as bran or other kinds of mill-feed; and whether there is a sufficiency of nutriment in itself, and a sufficient quantity will be eaten to keep stock in good condition without the addition of a mixture.

A SUBSCRIBER.

Brunswick, Rensselaer county, November 14th, 1737.

DISEASES IN CATTLE.

Dear Sir,—I have not lost, from sickness, but one horned creature for more than twenty years; yet I do not know whether I should attribute my success to good fortune, or to the manner of managing my cattle. I will give my practice, and if others should be benefitted, I shall be sufficiently compensated. The first requisite I consider to be plenty of good feed. The next thing to be attended to is the tail soak, which makes them liable to take cold, and produces the hollow horn and other diseases. The tail-soak may be known by the hair in the bush of the tail being rolled or twisted; when this is the case, the animal will not thrive or grow as well as when clear of it; it is frequently observable in calves.

Cure.—Cut off the end of the tail until you find the bone; it should be done when the weather is mild, and attend to it to prevent the too great a loss of blood. A quart or two of new chamber lye frequently given to each creature is a great preventive of disease.

Cure for Hollow Horn.—The pill recommended by your Ohio correspondent is much used in this town with success; but I prefer a tea-kettle full of water, boiling hot, poured from the spout upon the horns of the animal, having the nose held aside to prevent injury. It operates upon the same principle as immersing a person's feet in warm water, and frequently causes profuse perspiration, and the animal should be kept from very chilly winds for a few hours, and give from one to two ounces of flour of mustard.

Cure for the Fouls—either kind.—Cleanse the foot by washing or with a rope, and sprinkle upon the affected part half a tea-spoonful of blue-vitriol. For the peth-fouls put blue vitriol into the affected part on a probe or knife. Blue vitriol will also cure the hoof-ail in horses, if applied as above and a tarred rag put on to keep out the dirt.

Cure for Hoof-ail in horned cattle.—Cut off the point of the hoof until it bleeds.

Cure for Scours in cattle or horses.—Boil white oak bark, white pine bark and beech bark, and give it to them in bran if they will eat it; if not, pour it down. The oak is an astringent, the pine is healing, and the beach cures the inflammation.

Cure for Garget.—Give scoke (or garget root) a piece as large as your finger, grated and given to a cow in any thing she will eat; it is very efficacious. It grows from three to six feet high, with a purple stalk, and strings of berries growing from between the branches. It is said to be poison to a horse. It will cure those painful, unwelcome visitors, fellons on your finger, in any stage of them, if grated and put on cold and changed often. It is good for many other swellings.

Cure for a Cork in the foot of an ox.—Put on British oil.

It is thought to be sure death for a horse to be kicked in the stifle; but if you should have one in that situation put in plenty of fine salt and nothing else. Try it. The creature that I lost was a steer, nearly one year old; he bloated and soon died for want of a remedy; will some person communicate one? as it is quite common for cattle to bloat and die in this vicinity.

Yours with respect, &c.

PLINY L. EVANS.

P. S. If any horned creature should have a film growing on the eye, caused by a hurt, put in fine salt, it is a sure cure, but rather harsh.

Bolivar, Allegany county, New-York, September 2d, 1837.

Tyre, September 28th, 1837.

Dear Sir,—We had considerable frost on the morning of the 21st inst. and again on the morning of the 24th, which did considerable damage to late fields of corn. The seasons of late have become so precarious for raising that crop, that I would advise my agricultural friends not to attempt to raise any more than what they can get in in season, and cultivate in the best manner. Corn, in this section, should be planted as early as the tenth of May; the ground should be made mellow, and a shovel full of fine manure applied to each hill before planting; this gives it an early start, and sends it forward, so that it is not liable to be cut off by the early autumnal frosts. I have heretofore been in the practice of spreading my coarse manure over the ground, turning it under, and planting on the top; good corn can be raised in this way, and some labor saved; but there is one objection, it takes so long for the roots to penetrate to the manure, so as to draw any nourishment therefrom, that it will be at least two weeks later in getting ripe, than corn planted in the method above described. Like the animal creation, it needs the most nourishment and care when in its infant state.

Peas make a very good substitute for fatting pork, and they leave the ground in good condition for sowing wheat. I would here mention a little circumstance, that others may profit by my loss: I had heard it suggested that peas would do equally as well, if not better, to sow them on the ground before breaking up, and plough them in. I tried on a part of my field, which was wheat stubble, and the result was, that not more than two-thirds came up at all; and what did, came very irrregular, and were at least one week later than the rest of the field, which I sowed on the furrows, and harrowed in.

All kinds of summer crops have done tolerable well; potatoes and oats, especially late sowed buckwheat, has been somewhat injured by the frost. I think farmers would do well to sow their buckwheat previous to the middle of June, it is more liable to be injured by the frost than by the sun.

P. M. *Tyre.*

WINTER WHEAT SOWN IN SPRING.

Snow-Hill, Md. October 26, 1837.

J. Buel, Esq.—Sir,—I have thought that the following might not be unacceptable to the Conductor of such a paper as yours:

The tenant on one of the farms of Lemuel P. Spence, Esq. of this county, seeded about one bushel of common red chaff winter wheat, on or about the 1st of March last, which sprang up and and grew luxuriantly, and came to perfection about seven to ten days later than is usual, when such grain is seeded in the fall, say September or October. The product of this bushel of wheat was ten bushels, the grain very fine indeed. It was seeded in land rather poor than otherwise, the soil by no means close but rather sandy. It was an experiment of the tenant, not with a view to a great crop, but to ascertain whether such wheat, seeded in the spring, would form perfect grain. Had the soil been clay and rich, the crop must have been very large. This farm lies open to the Atlantic.

Respectfully, GEORGE HUDSON.

DUTTON CORN IN OHIO.

Fairfield, Ohio, September 19, 1837.

J. Buel,—The Dutton Corn and Italian Spring Wheat you sent me by order last spring to Philadelphia, came to hand about the 20th May. Some of the corn was planted as late as the 1st of June, and is now sufficiently ripe to cut, while the corn we have been in the habit of planting from the 10th to 15th of May, remains soft, owing to the wet and coldness of the season. From the appearance of the Dutton corn it will suit our climate better than any other variety we have had, or been in the habit of planting. The spring wheat, owing probably to the lateness it was sown, and the wet weather at the time of making the grain, was so much struck by rust, that the crop will be light, though we are determined not to give up the ship.

I would be pleased to see in the Cultivator some directions for rotting and dressing flax, in the Irish manner.

Yours, M. MENDENHALL.

J. Buel, Esq.—Dear Sir,—If you think the following worthy a place in your paper, you are at liberty to give it an insertion. I raised this season, on three-fourths of an acre of ground, on my farm in the township of Oxford, Warren county, New-Jersey, the following crop of ruta baga: weight of roots 20,888 pounds, tops 7,296, making in the whole 28,184 pounds, which is the greatest yield I have heard of.

Yours, &c. WILLIAM TAYLOR.

SEEDLESS APPLES.

Ridge Prairie, Madison co. Ill. November 7, 1837.

Mr. John C. Riggin, of this place, has two very large apple trees, the fruit of which contain no seeds, and a very small core. The apples are sweet, and of a most delicious flavor. The trees are supposed to be seedlings They were barren till a few years past, when they were made to bear by cutting and hewing through the bark and alburnum, on three or four sides of the trunk.

Yours,

J. Buel, Esq. GEORGE CHURCHILL.

LIVE FENCES.

Dear Sir,—We are beginning to make some improvements in this county, and many farmers see the necessity of taking measures to restore their exhausted soils. But much is to be done. The reckless exhaustion of timber and soil is already felt as a serious inconvenience in many parts of our county, and the question of supplying these deficiencies, is beginning to be seriously considered. The renovation and preservation of soils is very ably and fully treated of in the Cultivator; but the defect of timber for fences I do not think is so will considered by many of your correspondents. I have fully tested (thus far) the practicability of making live fence, and have no doubt but that it will succeed, and that it will be found to be the cheapest fence, of a permanent kind, that we can make. I have a hedge of about thirty-six rods long, the greater part is of the honey locust, which I grew from seeds. And as I observe that many complain that their seeds do not grow well, I will mention my practice to cause them to germinate. I diluted half an ounce of nitric acid in two quarts of water, having it a little warm, and in this I steeped the seeds twenty-four hours; then (about the last of April) planted them in drills; many of the plants appeared in three or four days; the earliest were cut off by late (May, 1834,) frosts, but enough came up afterwards to make me a fine nursery. The next spring I planted them in a double hedge row, about six or eight inches apart, where they have now had three summer's growth, and many of them are now more than an inch in diameter, and would have been six or seven feet high had I not cropped them down. Of their success I have no doubt. Yet I fear there is one objection to the honey locust, that the roots, which pass out into the wrought ground and are cut off, will send up troublesome shoots, to the annoyance of the cultivator and the injury of other crops.* Obviate this difficulty, and the honey locust for a hedge against the world. I have also our native white thorn, which I think will do well, but grows slower than the locust. I have also the English thorn, which in many respects is greatly inferior to either of the preceding. I do not observe that the winter affects it here, but still it is a tender little affair.

I hope my hedge will be a sufficient protection to my inclosure in two or three years more. I design to plant the prepared seeds around a pasture lot of three acres next spring, but will dig a ditch in the inside some three feet from it, to obviate the objection of the roots sprouting. I have never tried the effect of diluted nitric acid upon thorn seeds, but feel confident it will cause them to germinate in a short time. The reason such seeds do not grow as soon as any other seeds, is that they are incased in a hard shell, impervious to air and moisture, so necessary to swell the lobes or cotyledons, and even if they could swell, they might be unable to break their hard envelope. This beneficent provision of nature prevents the world from being overrun with thorns, as the seeds must lie in the earth a long time before they naturally germinate, the kernel generally rots before the shell is sufficiently softened to be burst by it. The effect of the nitric acid is to cut or decompose the shell, and no doubt the oxygen of the acid accelerates the germination. Other objections are made to the honey locust, which I think are not well taken; one is, that it grows too large; suppose it gives you a fence of a solid tree all around, is that any grievance? Its height you must regulate as you would any other hedge, with your shears. Another is, and this applies to hedges of all trees, as well as to this, that standing so thick upon the ground, they will be killed by one severe drought, for want of moisture. My hedge grows upon a gravel bed, and the summers of '35 and '36 were exceedingly dry, and the trees then thrived as well as any solitary trees in the inclosure. I intersperse roses and sweet briers in my hedge, which thicken it where required, and add much to its beauty in the blooming season.

Yours truly, J. DILLE.

Newark, O. November 14th, 1837.

GREAT CROP OF CORN.

Georgetown X Roads, Kent Co. Md. Nov. 4th, 1837.

Mr. Editor—Dear Sir—I have just finished measuring the corn that grew this year on a lot of mine of 5⅛ acres, and have measured 105½ barrels and one bushel of ears, making 103 bushels of corn per acre. The corn is called Semman's corn; it is a deep yellow, and not a gourd seed, but a very deep grain and small red cob, has from 18 to 24 rows on the cob. I have taken great pains in selecting my seed for the last three years. I threshed off 320 bushels last May, and found from measurement it measured from the barrel 5 bushels and ⅞ of shelled corn. The following is the manner in which I prepared the ground, &c. The soil is a stiff clay: 1½ acres of said lot was in clover last year, the balance in wheat. I put 265 two horse cart loads of barn yard manure on it: the manure was coarse, made out of straw, corn tops and husks, hauled in the yard in January and February and hauled out in March and April, consequently was very little rotted. I spread it regularly and ploughed it down with a large concave plough, (made by G. Cox of Middletown, Delaware,) 7 inches deep. I then harrowed it twice the same way it was ploughed. I then had the rows marked out with a small plough, 3 feet 10 inches wide and 1½ inches deep. I planted my corn from 18 to 22 inches apart and covered it with hoes: just drawing the furrows over the corn, which covered it 1½ inches below the surface. When the corn was 4 inches high I harrowed it, and thinned it to 2 stalks in the hill: in about 2 weeks after harrowing I cultivated it: about the 15th of June I cultivated it again, which was all the tillage I gave it. We farmers of the Eastern Shore count our corn by the thousand: I had 38,640 hills on my lot, and I think my corn would have been better if I had planted earlier: I did not plant until the last of April. I think the planting of corn shallow and working it with the culvator is much the best way, especially on clover lay. If you think the above worthy of notice you will please give it a place in your valuable paper.

WILLIAM MILLER.

---

* This will not happen—the honey locust never sends up succors from the roots.—*Cond.*

EXTRACTS.

[*From the Maine Farmer.*]

RULES FOR SELECTING SHEEP AND BEASTS.

Mr. Holmes—The exhibition of the various kinds of stock at the late cattle show at Winthrop, is the surest evidence of the increasing interest in our farmers to improve their qualities: and much praise is due to the trustees of the Kennebec Co. Ag. Society, for premiums offered by them; as these premiums had their share in producing great exertions to promote the views of the society.

Six lots were entered for the premiums offered by the society; "on the best lot of lambs, not less than four in number, from *any* cross, forming a breed, which shall unite in the greatest degree those qualities which shall produce wool and *mutton*, in the most profitable manner." The first premium was awarded to Mr. J. W. Hains, "for four lambs of the *same breed* as those exhibited by Mr. Vaughan," and the second premium to myself, for "four lambs from ewes of my mixed breed, sired by a *full blood* South Down buck."

These different experiments, if repeated and varied, must result in securing to our country the most profitable breed of sheep, and well suited to domestic use. Breeds that will unite in the best shape, good constitutions, good breeders, and a superior disposition to fatten on the least food.

Notwithstanding the royal patronage of George the third, who imported a flock of merinos from Spain, there are very few merino flocks in England. The fine wool, for the manufacture of the finest cloth, is obtained through importations. The improvement in the breeds in England, has been made by the crossing of the various kinds already in the country, and in the judgment used in selecting the kinds for these crosses. Mr. Bakewell, who has deservedly the reputation of having arrived at the greatest perfection, by selecting the proper animals to cross with the Leicester breed of sheep, has given to the heavy fleeces of combing wool, mutton of a superior quality. Out of 16 different breeds, classed according to quality, the Dishley breed stands No. 1, in the class of combing wool, and the South Down is No. 1, in the class of shearing wool. The merino is the last on the list.*

I shall now proceed to the first object I had in view in making this communication. It was to furnish the rules, used by Mr. Bakewell, and the most eminent breeders, which enables them to make their selections of the most profitable animals. The extracts which I offer are taken from *Young's Annals*, and may remove the difficulty of deciding on the quality of mutton in sheep, without the use of the "*knife*" or the "cook," as expressed by the committee on sheep, in the report on the various lots of lambs offered for the premiums.

These extracts will clearly show that Arthur Young, Bakewell, and other eminent breeders, did not use the sense of *taste*, but trusted to the use of the two senses of *seeing* and *feeling*, and more particularly the *latter*.

Though this article has a reference to sheep, yet as the same general principles apply equally to cattle and sheep, those points described as essential in beasts, we give here.

Mr. A. Young, in a tour through some of the agricultural counties, visited Mr. Bakewell and explains,

1. "The general principles, which guided Mr. Bakewell, in breeding a beast or *sheep* for the butcher, and at the same time explains his own stock, which is in the highest perfection, when examined with an *eye* to these principles.

"In all his exertions, his aim was to obtain that breed, which with a given amount of food, will give the most profitable meat, that in which the proportion of the useful meat to the quantity of offal is the greatest.

2. "Points of the beast. On this plan the points are those where the valuable joints lie, the rump, the hip, the back, the ribs, and after these the flank; but the belly, shoulder, neck, legs and head should be light, for it a beast has a disposition to fatten, and be heavy in these, it will be found a deduction from the more valuable points. A beast's back should be square, flat, and straight, or if there is any rising it should be from a disposition to fatten, and *swell about the rump and hip bones*, and the belly should be quite straight, for if it swells it shows weight in a bad point. He prefers to have the carcass well made, and showing a disposition to fatten in the valuable points. So far on *seeing*.

3. "Feeling. Mr. Bakewell, to judge whether a beast has the right disposition to fatten, examines by *feeling*. His friend, Mr. Culley, who has had an infinite number of beasts go through his hands, agrees entirely with Mr. Bakewell in this circumstance, and when with him in Norfolk and Suffolk, was surprised to find *lean* bullocks and *sheep* were always bought there by the *eye* only. So *absolutely necessary is the hand in choosing either*, that they both agreed, that if they must trust to the *eye in the light*, or to the *hand in the dark*, they would not hesitate a moment in preferring the latter. The form of the bone in *sheep* is quite hidden, it is the hand alone that can tell whether the back is flat and broad, and free from *ridge* in the back-bone; or can examine correctly, if the other points are as they should be. *The disposition to fatten is discovered only by feeling*.

"Speaking of sheep particularly, the points to examine are the same as in an ox. Flatness, breadth of back, a spreading *barrel* carcass, with flat belly, and by no means curved and hanging. The essential is the carcass, and a disposition to fatten in the carcass, and perhaps to have the least tallow on the sides."

In a comparison between the Norfolk breed and South Down, it is the opinion of John Vise, butcher to Eton college, that "with respect to profit to the feeder, if they are fed entirely with grass, and upon good land, my opinion is decidedly in favor of the South Down; or if they eat turnips in winter, and after that are kept two or three months on grass in the spring, it is the same. But if they are kept fat against winter and are to be completed on turnips, the Norfolk is more profitable that the South Down." On this, Arthur Young remarks, that the profit here spoken of must be to the grazier and butcher, but not to the breeder, consequently is not so good to the public in general.

It is time to close, though much valuable matter remains to be noticed; I hope what extracts are given, will be found useful.

CHS. VAUGHAN.

ECONOMY IN FEEDING.

There is, perhaps, no department in the business of agriculture so *little* attended to in this country as that of economy in the feeding of stock, and none which requires *more* attention. It has been demonstrated time after time that the mere bruising of oats, or corn, or the cutting of hay, adds fully one-third to their value as food: that is, that one-third less in quantity of either will answer. That this is the fact we have no doubt, and have long been surprised that so few persons, owners of stock, adopted this mode of feeding. No one who has watched with a discriminating eye the effects of feeding animals with whole grain but must have observed the fact that a large portion comes from them precisely in the same condition it was received by them into their stomachs. The reason of this is obvious: their stomachs have become so enfeebled, by being long used to unbruised grain, corn, or oats, as to be unable to digest the regular portions of these substances daily given them. This fact alone should bring about a reformation, as it is calculated to convince any one capable of drawing just deductions from well established principles, that all food which is voided in an undigested state, so far from having done any good, must have been the cause of much positive harm, as all bodies which lie in the stomach in that condition, are so many sources of irritation, derangement, and disease. But there is another view, which we do not recollect to have seen enforced—it is this: that by crushing or bruising all grain food given to cattle, the manure will be the more valuable. How often do we see a piece of ground which has been manured from the horse stable so covered with oats as to induce the belief in a stranger that *oats* had absolutely been sown, when in fact they had sprung from undigested grains which had passed through the horses. The trouble which such foul manure imposes upon the husbandman we need not mention, as sad experience has made every one intimate with it. If then one-third in quantity of grain can be saved; if that fed is more nutritious, if the manure made from it is cleaner and better, why should farmers and planters hesitate a moment? Why do they not at once abandon a practice so replete with evil? We leave the solution of these questions to those interested, and shall proceed to another branch of our present business.

What is the best food for horses in winter, economy considered?

Before we reply to this question we will premise, that we may set it down as a safe calculation, that the average yield of oats and corn throughout the United States is not more than 25 bushels to the acre. There are, to be sure, many districts of country in which there are numerous instances of quantities far above this produced upon an acre of ground; but then when we speak of the average for the *whole* country, we consider it would be unsafe to go beyond the quantity have named. In 25 bushels of grain there 200 gallons, and as the usual quantity given to a horse at a meal is one gallon, and he is fed three times a day, 25 bushels, or the product of one acre, will be 66⅔ days. Now let us see how stands the account with carrots. An acre of carrots planted on sandy loam well manured, say 20 double cart loads of short manure, if properly tended, that is thinned to the distance of 4 inches in the rows, and weeded and worked three times, will yield 300 bushels, and as there are 1,200 pecks in that quantity, and 3 pecks will sustain a horse a day, so will 1,200 pecks sustain him 400 days, or 4 horses 100 days, or 5 horses 80 days. The advantage of such product for winter feed we think so obvious as not to require further illustration. Every farmer knows that there are long periods of time during the winter months when the horses on a farm do but little work, and during these periods carrots are just as good for them as either oats or corn, and require but little more trouble in their preparation, for if they be not very large the horses will consume them without cutting, so that all they require is washing, a labor which can be performed in 15 minutes for twenty horses. It is said that they are not as substantial food as either oats or corn: true they are not; but when horses are *idle* during winter, less substantial food will answer. Good hay and carrots will not only keep them in good heart, but *fat*, if they be properly attended to, are carefully watered, curried, and warmly kept. Carrots will keep buried in the open air from November till May, during all which period they may be advantageously fed to horses. The benefit which would arise to the farmer from such a course of feeding, will, we are certain, strike the most superficial observer, as it would enable him to sell more of his grain if he had a large surplus; and if the reverse, he would find his profit in the decreased demand upon his granary. It may, and doubtless will, be said that the culture of the carrot is a troublesome one; but on the other hand we affirm that they are no more so than *corn*, if the latter be well tended: they require *thinning*, so do corn, they require to be kept clean, so do corn, and we affirm without the fear of contradiction, that they do not require to be oftener worked, and as we have demonstrated that they will go nearly six times as far, we recommend their culture to the consideration of our readers, and in so doing, discharge not only a duty, but one which we feel assured will be well received, because well intended.—*Farmer and Gardener.*

---

* The maturity of the different breeds, and age for the butcher, ought to be noticed. The Dishley, South Down and Teeswater wethers are fit for the butcher in two years, 3 of the 16 at 2½ years;—of the others, 2 at 3½ years, and 6 in 4½ years. The merino in the list is not graded for mutton.

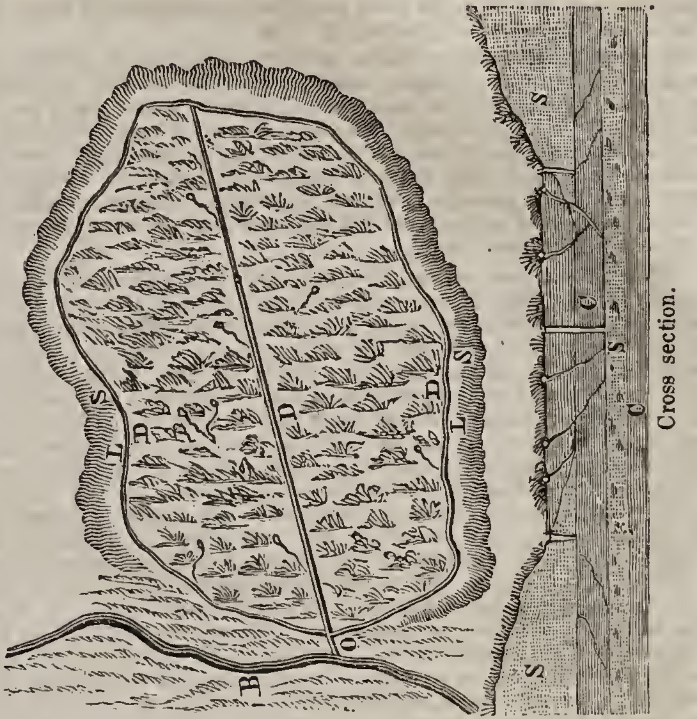
SMUT IN WHEAT.

That this prescription of brine and lime, or chamber lye and lime, will answer the end designed of preventing smut, we do not doubt; for the practice here recommended has obtained in Western New-York for more than twenty years, and we do not recollect a single instance in which it has failed where properly conducted. From whence the practice originated we know not; but in this state it was first adopted on the eastern shore of the Cayuga lake, and that region had, for a long time, the reputation of producing the finest wheat in the state; and it was extensively purchased for seed in other but less favorable districts. For a number of years past, smut has hardly been heard of, and seemed eradicated; and in consequence the preparation of seed wheat by liming has fallen into disuse. It must be again adopted, where seed perfectly pure cannot be obtained, and even in such cases its use is safe, as it can possibly do no harm. It was at one time supposed by many farmers, that gypsum would answer the purpose of lime, for drying the brined wheat, and preventing smut, and in some cases was substituted for it. The result in the most of these instances, was, the evil appeared aggravated in a ten-fold degree. We have seen an experiment of this kind tried, that to us, was perfectly conclusive. A field was sown with wheat all brined, and with the exception of that required for a few lands, all thoroughly limed. The remainder was dried in plaster instead of lime, and sown the same day with that on which lime had been used. At the time of harvesting the line between the two kinds was distinctly marked, no smut being found on the part that was limed, while the plastered part was almost worthless. Spring wheat, it has been found by experience, is more apt to be smutty, than that sown in the fall, and hence the greater necessity of properly guarding against the disease. As many are intending to cultivate this grain to a considerable extent another year, the propriety of paying particular attention to this subject is evident, that the character of the region for wheat and flour, may not suffer. Whether in autumn or spring, we advise our farmers to be very careful as to what wheat they sow, and if there is the least danger of infection to apply the brine and lime at once. —*Genesee Farmer.*

DRAINING.—*(Continued from page* 151.)

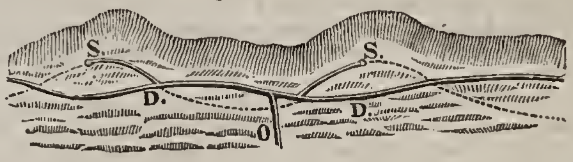
When the land to be drained lies flat, with rising ground on each side, and the breadth of valley is narrow, if the stratum containing the water which rises on its surface, forms part of the high ground on both sides, and is continuous below the soil of the valley, a drain carried through the lowest part, deep enough to reach the porous stratum, or, if the depth of the intervening strata is too great for a drain to be cut through, bore-holes or wells must be made in its bottom, which will have the same effect of drying the land without the necessity for cross and branch drains; this case, however, will not hold good if the valley is of any considerable width. Indeed, there are very few situations of this kind in Scotland,[*] where the extent of the ground to be drained is more than fifteen or twenty yards wide, but will require a drain carried through the centre or lowest part, to receive the surface water, and any springs which may arise out of the porous soil; and also another, on both sides, between the wet and dry ground, deep enough to cut off the water oozing out of the high ground, as shown in plan 3. If the surface water that flows into the hollows is considerable, the drain in the middle should be open, but covered in all other cases.

Fig. 43.—Plan 3.



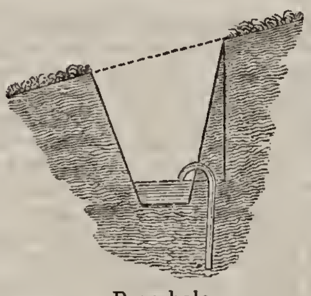
In many instances in draining the sides of hills or sloping ground, it is necessary, on account of keeping the level and to save making more outlets than one, to carry the drain in some places below where the water first makes its appearance, or breaks out from the tail of rocks or other porous strata, and from it to make offsets the same depth as the drain, to the upper side of the wetness, (as shown in plan 4,) in order to dry the small spaces on the upper side of the drain, on which, from its locality, it can have no effect. Bore-holes would be useless in such a situation, where the sub-stratum is clay, and where there is no under water; and also if the drain was cut above or in a line with the upper springs, the depth of cutting would be too great to get hold of the water that injures the land below. These offsets are sometimes made in the form of the letter T, and sometimes they are carried all round the small wet spaces, but more frequently they are made as shewn in the plan.

Fig. 44.—Plan 4.



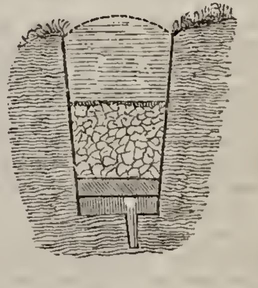
Outlet.

1, Open drain.



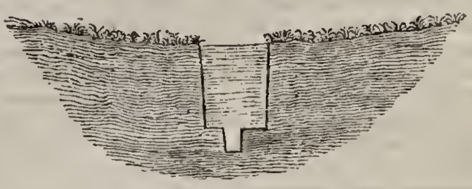
Bore-hole.

2, Covered drain.



Bore-hole.

3, Shoulder drain.



---

[*] In many parts of England, the stratification lies so regular that a drain carried through a hollow part of a field, deep enough to reach the porous stratum, (which, in many instances, is composed of gravel, porous limestone, or chalk,) will dry a much larger extent of land than when the strata is so much broken as it is in Scotland; consequently, a person will have little chance of practising there to advantage without previously acquiring a knowledge of the variableness of the sub-strata, although he has had considerable experience and success in laying out drains in England.

DRAINING CLAY SOILS INJURED BY SUBTERRANEOUS WATER.

Although the wetness of this kind of land originates in many instances from the same cause as bogs, and the same principles are necessary for their drainage, yet there are other considerations required in order to effect a complete and cheap drainage of them.

In bogs, the water either breaks out in the high ground, or rises in the moss in the form of *welleyes*, which is easily discovered; but before a drainage can be effected in clayey soils, it must be looked for in the bowels of the earth. To ascertain, therefore, the exact depth where the water lies, and the quality and inclination of the strata, pits or bore-holes must be made; and if the water is found in all them to be nearly of the same level, it is a sure sign that it comes from the same source, but if the level of the water varies in the different pits and bore-holes, it evidently proceeds from different strata.

When the wetness originates from the first of these causes, two drains carried across a field, the one near the upper side, and the other half way down, will, in most cases, dry it, if the extent is not more than fifteen or twenty acres; but if the drains do not reach the water, bore-holes will require to be made in their bottom. When, however, the stratum which contains the water is composed of fine sand, or any other substance which does not allow it to pass through freely, more drains will be required, and also a greater number of bore-holes in their bottom. If the porous stratum does not lie far below the bottom of the drain, and the clay is soft, it is advisable to sink small *pits* instead of *bore-holes*, and fill them with small stones, before the conduit is laid; but if the clay is of considerable thickness and very hard, *bore-holes* may with safety be resorted to, as no apprehension need be entertained of their being filled up, for such is often the force of the spring, that it will throw up whatever earth or sludge may accidentally get into them, and they can only be injured by the sudden admission of surface or flood water. When water shows itself in the furrows, and, at the same time, is standing in the small holes on the top of the ridges, it is a sure symptom of its coming from a considerable depth; and in this case, the drain, where the land has the least declivity, should be carried along the upper side of the wetness, following all its windings, and cut to such a depth as will intercept the water from the land below; but if the land is flat, it must be taken through the middle, or where the springs appear to be strongest, and made four, six or even eight feet deep, according to the situation of the water and other circumstances, such as the level or direction in which the water has to be carried; and if the above depth does not reach the porous bed, the augur must be used.—When the water shows itself prominent in several places in the same field, and proceeds from different sources, a drain, with bore-holes if necessary must be carried through; or, if the ground slopes near the upper side of such parts, the depth of it must be entirely regulated by the circumstances of the case.

In all cases of draining, it is expedient to have as few outlets as possible, and, consequently, it is of great importance, in laying out drains, this should be particularly attended to; more especially where the water is scarce, it is of great advantage that it should be directed to the most convenient place, which will answer both for an outlet and a watering pond.

It frequently happens that springs (or spouts, as they are commonly called,) rise in the middle of a field at such a distance from any open ditch where the water may be discharged, that a covered drain brought from the nearest outlet, would have to pass so far through dry ground as to render the expense greater than the injury done by it; this may be remedied in some cases, by boring or sinking pits through the impervious bed of clay that lies immediately below, into the porous stratum, or by cutting a drain from the spout into a porous bank or shattry rock, through which the water will subside. But when the stratum, which the water is let down to, *tails out* any where below or farther down in the declivity, the water will again break out, and cause a similar *spout* or wet place in the field; this, however, will seldom take place, and may be easily remedied by means of another short drain. Before, however, any drainage is commenced on this principle, it is necessary to discover, in the first place, whether the porous strata immediately under the clay is dry and will absorb the water, or whether, being already full of water, it may, instead of receiving more, throw up a greater quantity to the surface, and thus increase the evil. The substrata may sometimes contain water, although, owing to the thickness of the clay, it makes no appearance on the surface, but which, being connected with some higher water, will flow up when a passage is given to it by the auger, and having no outlet through the circumjacent bank, it will render the land much more wet than before.

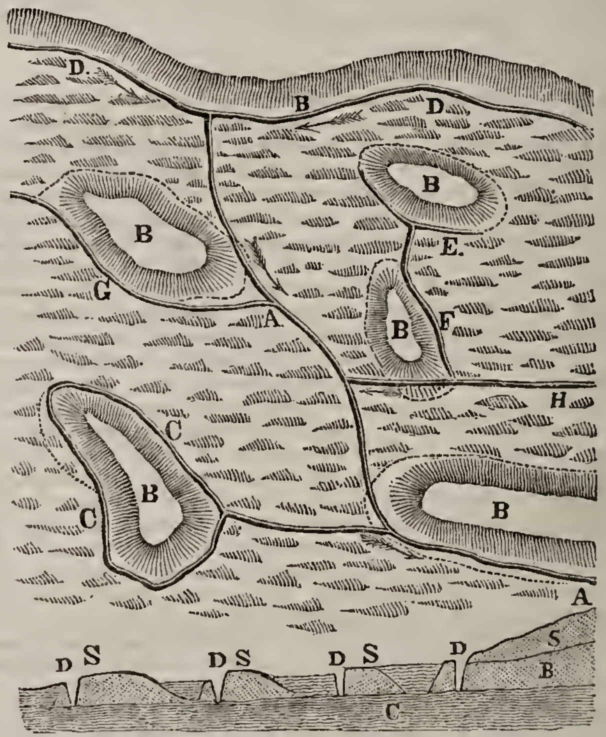
I could produce many instances of land being drained in this country agreeable to the above principles, but I consider this would be superfluous in this place, as the reader will find, in the account of the draining of Runnaby meadow, the principles so ably explained, and in such a practical manner as to give the most clear and satisfactory explanation of the cause of wetness in land, and the best method of removing it. Indeed, the success of this drainage, in a practical view of the subject, cannot be surpassed by any other that I could select from the many hundred cases of the same kind with which I have been engaged in this country.

DRAINAGE OF SOILS COMPOSED OF ALTERNATE BEDS OF CLAY AND SAND RIDGES.

Soils composed of an intermixed variety, and when clay predominates, are attended with much greater difficulty in draining than those in which both the surface and internal strata are more regularly disposed. In such soils, where every reservoir of water is unconnected with one another, being separated by means of clay beds or dykes, the partial collections of water which they contain are so much augmented in rainy seasons, as to be filled to the level of the surface of the surrounding clay, which it overflows, and renders it so wet and sour, that all kinds of crops are stinted in their growth.

As these sand ridges have no communication with each other, a separate drain is required from each, in order to reduce the water in them.—The outlet drain A, must be made from the lowest part of the field to the sand ridge situated at the highest and most distant part, and to be carried in such a direction as to touch, if possible, some of the intermediate sand ridges, (as shown in plan 5,) whereby a considerable extent of drain will be saved. From the outlet drain A, branches must be carried to each of the sand ridges B, which, when made sufficiently deep, will draw the water from them, and prevent it wetting the adjacent surface. Although the water oozes out all the way round the sand ridges, a sufficiently deep drain on the lower side will, in many cases, extract the water from both sides; but when the ridges are of considerable extent, and the sand of a very fine quality, so as not to allow the water to pass through it freely, the drain must be continued all the way round, as is shown at C.

Fig. 45.—Plan 5.



In many cases, the whole of the wetness proceeds from the water in the upper sand ridge passing over the intermediate spaces of clay, and through the different ridges below. When this happens, the drainage of the whole field may be accomplished with much less difficulty than in the former instance. After the outlet drain A, has been made, the upper drain D, must be cut, which will intercept the water, and may, by this means, render the lower drains, C, E, F, G, H, unnecessary. It is evident from this, that the water breaking out of the sand ridge in the highest part of a field, may be the sole cause of injury to a considerable extent below; it is, therefore, expedient, in draining land of this description, that the water in the upper side of the field should be first cut off, and its effect ascertained before any more drains are made in the lower part.

There are other soils of a similar nature, the drainage of which is easier accomplished, on account of their alternate beds of clay and fine sand lying much more regular. Under the alternate beds of clay and fine sand, which are often almost parallel to one another, is generally found an impervious body of clay, which keeps the veins of sand full of water, moistening the adjacent clay and running over it. As the main body of clay is seldom more than four or five feet below the surface, a drain must be cut to that depth through the middle of the field, if it has a descent from both sides; and if the ground declines all to one side, two drains will be required, the one near the upper side, to cut off the water coming from the ground above, and the other near the lower extremity or lowest part, where the water in the different beds of sand will easily discharge itself. This, no doubt, will answer the purpose effectually—as the drains cross the different beds that contain the water, they will draw it from each, unless the field is of considerable extent, or have more hollows than one, in which case a drain must be made through every hollow. In draining land of this kind, there is seldom any need for using the auger, as the necessary depth of the drains reaches the impervious body of clay, the thickness of which being so great, that any water that is confined below will do no injury to the crop.

Another description of land to which nearly the same treatment may be applied, is when the soil and sub-soil, to the depth of three or four feet, is entirely porous, having under that a strong body of retentive clay; the rain water falling on the surface subsides till it meets with the clay, and then being obstructed from farther descent, the whole mass of porous soil above is filled with stagnant water, which not only retards the operations of agriculture, but also vegetation. To remedy this, it requires only one or more drains, according to the situation of the field; and these require to be made no deeper than to reach a few inches into the clay, between which and the porous soil, the greatest part of the water remains stagnant, although it does not appear on the surface.* If the land has a small descent from both sides, a drain cut through the porous soil into the clay in the hollow will effectually draw off the water; but if the surface is undulating, as is often the case, it is necessary to make a drain winding through all the lowest places, and when it is almost level, or inclining to one side, the drains must be made across the slope, to some convenient outlet in the side of the field, taking care in running them, to give as much fall as that the water will run without standing still in their bottom. A particular account of the general dimensions and method of making drains adapted to such soils, will be found under the head of rumbling drains.

Much land of the above description, in various districts of this country, may be completely drained in the same manner, at a very moderate expense, by a proper attention being paid to the situation of the ground and cause of the wetness. Such land remains so long wet in spring before it can be sown, that the crop is either obliged to be cut green, or, in some instances, is lost altogether.

DRAINAGE OF CLAY SOIL INJURED BY SURFACE WATER.

Owing to a considerable portion of the ploughable land in this country being injured by surface water, or water lodged between the soil and subsoil, systems as various as the effects they produce have of late been applied to drain such, and it therefore becomes a matter of the greatest importance that some definite rule be laid down, whereby a complete and permanent drainage may be effected in such land, and which, at the same time, will be attended with the least expense.

Tenacious soils are much more expensive to drain than any other, as the drains must be more numerous, in consequence of having to be laid out in such a manner as to collect all the water from the surface, which, from the imperviability of the clay, must, in many cases, discharge itself into them from above; and where there is any irregularity on the ground, the water will remain standing in the hollows of a drain is not carried through each of them. Drains for removing surface water from such land, when it lies flat, should therefore go the hollowest parts of the field, without any respect to straightness or regularity, and at such a distance from each other as will keep the surface of the land dry. When the soil and sub-soil are composed of strong clay, twenty feet between the drains may be fixed on as a general rule at which they will act; but when the clay is mixed with thin veins of very find sand, which is very often the case, thirty feet will answer completely. When the ground, however, has the least declivity, the drains should always be directed obliquely across the slope, or as directly across it as the nature of the surface and outlet will allow; the distance of one drain from another, in this case, depends on the decilvity, the proportion of sandy substance mixed with the clay, and the depth of the drain. Where soil is very tenacious and the declivity considerable, the drains will not act more than twenty or thirty feet; but where it is mixed with thin strata of fine sand, although the sand is hardly perceivable, the same depth of drain will act several times that distance.

The necessary dimensions of drains for removing surface water is found, from experience, to be from two and a half to three feet deep, sixteen inches wide at top, and twelve inches at bottom; and they should be filled with stones, broken to the size of road metal, in arable land, to within twelve inches of the surface of the ground; and in permanent pasture, such as lawn and pleasure ground, to within two or three inches of the surface of the ground. In all cases, after having covered the stones with some straw or turf, the remaining space should be filled with porous earth or sand, which, if it can not be found near the drain, should be carted to it, as they will be rendered useless if the impervious clay is again thrown into them.*

In coarse lands, where the ridges are generally very high and winding, the furrows between them, during a great part of the year, are mostly full of stagnant water, which, in many instances, destroy the crop half way up the ridges, the declivity of the surface of the land being insufficient to carry away the water. In such cases, drains are required in almost every furrow, according to the breadth of the ridges. They must be made about twenty inches deep, and the breadth of a common garden spade, and filled up with small stones or coarse gravel to within four inches of the bottom of the furrow; and if the land is very tenacious, the remaining space must be filled with porous soil. This practice, however, can only be recommended on coarse and other land of a similar nature; for it is evident that water within the earth, or on the surface, seeks a level where the fall through the porous soil is greatest; therefore a drain made across the slope or declivity of a field, or any piece of land, will undoubtedly intercept more water than when it is carried straight up the bank or rising ground; this principle holds good in every case, whether the drain be made to receive surface or subterraneous water. Drains winding across the slope or declivity of a field, whatever their number or depth may be, their effect upon tenacious or impervious sub-strata will be much greater than if they were made straight up and down the slope; and when the soil is mixed with thin strata of fine sand, which is the case nine times out of ten, the effect will be increased in proportion, and, accordingly, a much less number will answer the purpose, the expense will be greatly lessened, and the land and occupier much more benefited in every respect. The great error in the many systems of draining land now brought forward, is their universal adoption of running the drains straight up and down the slope in the furrows, instead of carrying them across it, and also in the smallness of their dimensions, without paying the least attention to the quality of the soil and sub-soil, and whether the wetness proceeds from surface or subterraneous water. It is quite impossible for drains that are only two or three inches wide at the bottom, and filled only ten inches high with broken stones or gravel, or laid with tiles covered with the impervious clay that has been taken out of them, more especially if they are made straight up and down the declivity, can have the same effect of drying the land as when they are carried across the slope and made of larger dimensions; neither can such drains be so durable, as they are much more apt to *blow*, owing to their small dimensions, when made up and down the slope, than when they are made the reverse way. This assertion is founded on facts and practical knowledge; and I am convinced that nine-tenths of the land that is attempted to be drained by furrow drains, would be much more effectually and permanently drained at half the expense, if proper means were employed. I have lately had many opportunities of seeing this verified; but one, in particular, drew my attention in a field near Glasgow, which had been furrow drained in the summer of 1832. I observed, in passing it in the following spring, tha many of the drains were already *blown*. The soil is of a sandy nature, and the ground has a considerable declivity to the south; which circumstances ought to have pointed out the necessity of deep drains, and having them carried across the slope, by which means a complete drainage would have been effected, and the permanency of the drains secured at a much less expense. Among many other instances of this kind which have come under my immediate observation, is a field of nine acres belonging to Lord Strathallan, in Perthshire, which was attempted to be drained some years ago. The soil and sub-soil were a somewhat stiff tenacious clay, mixed with thin veins of fine sand. No less than three hundred and ninety-six roods of drains, averaging from two and a half to three and a half feet deep, were run in straight lines up and down the slope, and filled promiscuously with stones, from the size of a man's hand to that of the largest ox's head. The first three or four years after they were made, the ground appeared tolerably dry, and produced a few middling crops; but, in a very few years, the drains were choked and *blown*, and the land became much less productive than it was even in its natural state, on account of the blown drains having formed springs where the land was perfectly dry before the draining attempted. The failure of this ill-judged and ill-executed drainage, obliged the proprietor, in the autumn of 1830, to lift the whole of the old drains, as stated by the factor in the annexed note,† and renew the operations, by running the drains across the declivi-

---

* In the course of practice, I have met with many cases of this description, but one in particular, was at Lennoxlove, near Haddington. The surface of the land had every appearance of wetness, although not a single drop of water was to be seen on it, but, upon sinking pits eighteen inches deep, the whole porous soil, to the depth of four feet, (where a stratum of strong impervious clay was found,) was full of water, which had no way of making its escape but by evaporation through the pores of the soil.

* One of the greatest errors in draining is, in filling the drains above the tiles or stones with the same clay which has been taken out of them, and which, in two or three years, becomes as impervious as the adjacent land. On the Marquis of Abercorn's estate at Paisley, an extensive drainage is carrying on under my direction; and there the drains are filled above the tiles or stones with *peat moss or coal ashes*, which are found to be among the best materiels adapted to this purposes.

† "Sir,—The drains you lined off in November last are now executed, and the land appears completely dry. The expense of lifting the old drains, which were quite useless by being stopped and bursted, was as follows:—

For lifting three hundred and ninety-six roods of old drains, at 9d. per rood,	£14	17	0
For filling in the earth, at 1d. per rood,	1	13	0
	£16	10	

ty, whereby not only one hundred and fifty-three and a half roods of drains have been saved, but a perfect drainage of the field has been accomplished at less expense than the lifting of the original drains. Many other examples of the failures of drainages from the same cause might be adduced, but, from their similarity, I consider it unnecessary in this place; I have not, however, met with any case that has not been successful when the drains were carried across the slope and made of sufficient dimensions, and, amongst numerous others with which I have been engaged, I shall only mention one, which not only realized every expectation that could have been formed of it, but also was drained at one-third of the expense it would have cost if it had been done by the system of furrow draining.

This case was at Cleland, in Lanarkshire, the property of North Dalrymple, Esq. The field is of considerable extent, having a general slope to the south, and the soil is of a tenacious nature, intermixed with veins of fine sand. The drains are made across the slope, at the distance of twenty yards from each other, averaging three feet deep, and the breadth at the bottom is twelve inches: they are filled with stones, broken to the size of coarse road metal, to within ten inches of the surface, and the remaining space with porous soil. The outlets are made winding through the lowest places, and intersecting the cross drains. These operations were finished in the spring of 1832, and have not only given satisfaction, but may be recommended as a complete specimen of shallow draining.

It is evident, from the above statements, that the practice of putting a drain in every furrow, without discrimination as to the circumstances of the ground, is often a misapplication of labor and loss of capital; indeed, in many instances, where it can with propriety be used, the end would be much better attained by proper formation of ridges and furrows, combined with deep ploughing, so that no water can remain dead. I have often seen large tracts of clayey land intermixed with whitish travelled stones, lying in sub-soils perfectly impervious, effectually drained by means of trench ploughing, and keeping the furrows regularly deep from one end of the ridge to the other. If farmers occupying clayey soils would pay more attention to the formation of the ridges and furrows, and to keeping the open ditches and water *gaas*, or cross furrows, sufficiently deep to clear the surface of all stagnant water in the hollow parts of the fields, there would be much less necessity for making drains for removing surface water.—*(To be continued.)*

[*From the Practical Farmer.*]

WORKING OF OXEN.

Much difference of opinion, says the author of the Encyclopædia of Agriculture, formerly prevailed as to which of the two animals, the horse or the ox, should be preferred for the purpose of farm labor, and the preference has generally been given by speculative writers to the ox, and by practical farmers to the horse. The first objection to the oxen is, that they are unfit for the various labors of modern husbandry, for travelling on hard roads in particular, for all distant carriages, and generally for every kind of work which requires despatch. Another is, that an ox team capable of performing the work of two horses, even such kind of work as they can perform, consumes the produce of considerable more land than the horses. And as to the money price of the horse and ox, this, it is evident, is merely a temporary and incidental circumstance, which depends upon the demand.

Notwithstanding the judgment thus pronounced on this subject, we find in this country the practice and experience of many farmers to be directly at variance with it. In a communication of the Hon. Levi Lincoln, of Massachusetts, to the Secretary of the Pennsylvania Agricultural Society, he says: " You inquire the mode of *breaking*, *feeding*, and *working* our oxen.

" The best broken oxen are those which are early trained, and accustomed to the yoke with occasional light work. They are often broken at as early as one or two years of age, with gentle and patient usage. At this period they are more docile and tractable, and it is thought become more powerful by becoming sooner accustomed to each other, and to the application of their strength to the draught. I believe they may be taught to travel in almost any gait; certain it is, the rate at which oxen differently broken will walk with their load, would seem incredible to a person ignorant of the difference in the mode of their training. To accustom them to a quick pace, they should at first be driven to the yoke, while young, without any or with a very light weight, and never heavily loaded until they have arrived at full strength and maturity.

" A great fault with many people is too much indifference to the *construction of the yoke.* Almost any shapeless piece of wood, with holes for the insertion of the bows, is made to answer; but to the ease of the draught, the adaptation of the yoke or bow to the neck of the bullock, and the position of the staple and ring in the yoke, are altogether material. For common use and for ploughing, I have found that yokes are generally too short. Cattle of the largest size require a yoke from four and a half to five feet in length. In short yokes they are apt to *haul*, as is termed, that is, draw from each other, and to such a degree, in some instances, as to cross their forelegs, and destroy their power, and greatly impede their progress. I once owned a pair, made totally useless by this habit, and afterwards entirely corrected it by the application of a yoke of eighteen inches more length. A short yoke is necessary only in snow paths, where cattle would otherwise *crowd* against each other, the opposite of ***hauling***, but of the same mischievous effect.

" In respect to what oxen may be made to do in a short time, or as an experiment on their strength, I must refer you to the results of our ploughing matches and trials of strength. With us they are but little used on the road, except in the transportation of heavy loads for short distances in the same town, or between neighboring towns. One reason why horses are preferred for wagoning on the road may be, that they can be made to travel quicker, and that from the construction of the hoof they are less liable to lameness than the cloven-footed ox, or by becoming foot sore. On the other hand, the patient and steady labor of the ox finds no substitute in the horse for the labor of the farm, and the latter is seldom seen there, except in occasional aid of the ox team, or with the light plough between the rows of corn.

" The value of a yoke of oxen or a pair of horses for use in all the work of a farm, admits of no comparison. So decided is the preference for the former that I do not believe a single farmer can be found in this extensive agricultural county, who performs his labor by horses without oxen; while there are *hundreds*, I had almost said *thousands*, who make no other use of horses in husbandry, than to furrow for planting, and plough among their corn for hoeing.

" Our oxen, also, to answer part of your inquiries, are kept in a cheaper and less expensive manner than horses. In the summer they are uniformly grazed in the pastures In the cold and winter seasons they are put into the barns, and fed upon *stock* hay, as it is called, that which grows in meadows, and upon the fodder of corn stalks, husks, &c. unless, indeed, they are more severely worked than usual, when hay of better quality is given them; and in all cases as the spring advances their keeping is improved, and with better hay some grain is added. I speak of the general practice of farmers. There are some who keep their oxen more generously, and others more hardly than I have mentioned. But with a clean and warm stable, the daily application of the curry-comb or card, and coarse food, without severe labor, the best farms will at times exhibit teams of most vigorous and powerful cattle, and their best hay and their grain will be saved in their beef and pork, and in the produce of their dairies for the market.

" Oxen yoked to a cart are generally superior to horses attached to a wagon. The greater weight which may be carried by the former, and the facility with which it is removed, by ***tipping up***, are of most striking advantage in the ordinary business of a farm. It is said that a cord of green oak or hickory wood is not an unusual load for a yoke of oxen to carry on a cart, while it would certainly require the power of three horses on a wagon. The estimate of relative expenses of keeping a pair of horses and of oxen, is in the proportion of three for the former, and two for the latter, and to this is to be added the value of the ox for beef when their strength fails for labor."

[*From the Franklin Farmer.*]

THE BEE MOTH.

Mr. Editor,—Having had some experience in the management of bees for several years past, during a part of which time my apiary has comprised twenty hives; and having been a close observer of the bee moth ever since its first appearance in this vicinity, I am induced to present a few facts which I have obtained by close observation, and which may probably assist some of your readers in checking the ravages of these destructive insects.

During the past summer I have kept a number of the maggots and the flies under glass tumblers and small boxes for the purpose of particular observation, and now write with one of each before me.

The moths are butter flies or candle flies, of a pale ashy color; and when full grown are about half an inch in length, with reddish backs, small sharp heads, short and delicate horns, and without a proboscis. Their wings are small and double, and when in a state of rest are kept close to the body. During the day they may be found sitting upon the retired parts of the outside of the hives, and may be easily taken with the fingers. About the dusk of evening and morning the females may be seen sitting with their wings extended, inviting the embraces of the males, while others are flitting to and fro, and occasionally one may be seen to

---

The expense of the new drains which you lined out were—

	£	s.	d.
For cutting forty-four roods, five feet deep and coupled, at 1s. 3½d. per rood,	£2	16	10
For cutting one hunrded and fifty roods, four feet deep, at 1s. 0½d. per rood,	7	16	7
For cutting forty-eight roods, four feet deep and built, at 1s. 1d. per rood,	2	14	0
For cutting level for said new drains,	0	6	8
	£13	14	1

The field is all ploughed and sown with oats. I am, &c.

To Mr. G. Stephens. PETER THOMSON, *Factor*."

" *Castle Strathallan*, 29*th April*, 1831.

dart with great velocity into the entrance of the hive. The bees will not pursue the moths on the wing, and the moths far outstrip them in flight on foot. The moths live about ten or twelve days, during which time I cannot perceive that they take any nourishment whatever. The only object of their existence seems to be to deposite their eggs, which are small, round and white, and of which I have seen ten dropped in rapid succession. For this purpose nature has most skilfully provided them with a *sort of proboscis* about the sixteenth of an inch in length, which is contracted and protruded from their tails, and vibrated with great velocity, as wasps or hornets do their stings, which it somewhat resembles. With this admirable apparatus the eggs are deposited in places which are inaccessible to the bees, as they would be destroyed by a thrifty and a spirited hive. As soon as the young maggot casts it shell, it envelopes itself in a web which is closely attached to the hive or stand, and which is impervious to the bees. These webs are enlarged as the maggots grow, and they grow fast and fatten kindly, no matter whether a poplar or pine plank, or honey-comb and its delicious sweets, are the elements upon which they subsist and weave their webs.

From one experiment I am satisfied, that the maggots will attain their full size of half an inch in length, and the thickness of a large knitting needle in the short space of eight days: but of this I can speak with greater certainty hereafter, as I have now two lot of eggs under observation.

The maggots have tough, jointed, white skins, and hard oval black heads. They crawl but slowly, and rarely venture from under the protection of their webs; though they often pass, like moles, through the centre of a sheet of comb ten or fifteen inches in breadth, making a partial web over each cell in the route. Though the bees cannot I believe, penetrate the hides of the maggots, either with their teeth or their stings, still they can fight them and carry them out of the hives; and this they will do, when the hive is thrifty and in good spirit. I have often seen a maggot straighten himself and crawl off, apparently unhurt, after having been fought by several bees for many minutes; and I have seen the moths run over the bees and escape out of sight, by the time the bees had faced about to give them battle.

After a brief existence the maggot gathers his web close around him, becomes inactive, and gradually assumes a harder black shell, which it bursts and is again a fly in about twenty days.

I have been somewhat particular, thinking it important to know the habits and character of the insects, in order to know how to destroy them. I have tried in vain to disgust and drive them from the hive, by the use of turpentine, worm-wood, penny-royal, &c. I have tried confining the hive close to the stand, and plastering up all the crevices with quicklime, and I think the plan with tubes for entrance (which I first saw seggested in an eastern paper) might succeed, did it not require a nicety of material, and a precision of construction, which are not within the reach of ordinary bee-masters. After losing two valuable hives by relying upon the closeness of the boxes, I abandoned the plan, and have since tried elevating them upon blocks with better success. The zeal of your esteemed correspondent J. J. V. for his plan has led him into an error, of which a close look into a thrifty and spirited hive will convince him. He will see the comb surrounded and covered with such dense clusters of bees as no fly could penetrate: and any moth would conclude that it was far easier, (saying nothing of danger,) to lay its eggs in the lower and unguarded corners of the hive than in the more distant and frequented parts. All my stands have been more or less infested this year, and two which were but partly raised from the stand have been entirely destroyed; and, from daily observation, I am satisfied that the moths invariably at first, deposite their eggs in the lower parts of the hive, and chiefly where it sits upon the stand; whence the webs are gradually extended until they reach the comb. The bees then soon relax their industry, lose their spirit, and commence to eat their honey, in which other bees unite, and which may be known by unusual quantities of excrement about the hive. The moths and the maggots aree mboldened to greater intrusions: they boldly enter the inmost recesses of the hive, and soon the work of devastation is disgusting and complete. The bees, not having spirit to resent the intrusion, and not being able to prevent it, languish, die, or desert the stand.

In a future number, if you wish, I will give you an account of the plan I have practised during the present season, and which I think most susceptible of general practice and success.

Your friend, R. W. S.

Note by the Editor —We wish our correspondent had added to the valuable information contained above, the account of the manner in which the depredator he so well describers, may be destroyed. The *evil* itself is indeed well described, and we wonder our friend did not point out the cure; especially as he knows his article in that shape, would have been more useful. Indeed, we had almost determined not to publish it until he added to it, the remedy of the evil. Let him, however, furnish his plan —he knows he is always welcome to our columns.

A SYNOPSIS OF THE IMPROVEMENTS IN AGRICULTURE.

We shall conclude with a few brief notices of some of the most prominent benefits and improvements which modern science has contributed to the art of agriculture. The husbandman of antiquity, as well as those o the middle ages, were destitute of many advantages enjoyed by the modern cultivator. Neither the practical nor the theoretical agriculturists of those periods had any correct knowledge of geology, mineralogy, chemistry, botany, vegetable physiology, or natural philosophy; but these sciences have given the modern husbandman the command of important agents, elements and principles of which the ancients had no idea. The precepts of their writers were conformable to their experience; but the *rationale* of the practices they prescribed they could not, and rarely attempted to explain. Nature's most simple modes of operation were to them inexplicable, and their ignorance of causes often led to erroneous calculations with regard to effects. We are indebted to modern science for the following among other improvements, viz: 1. A correct knowledge of the nature and properties of manures, mineral, animal and vegetable; the best modes of applying them, and the particular crops for which particular sorts of manures are best suited. 2. The method of using all manures of animal and vegetable origin while fresh, before the sun, air and rain, or other moisture, has robbed them of their most valuable properties. It was formerly the practice to place barn-yard manure in layers or masses for the purpose of rotting, and turn it over frequently with the plough or spade, till the whole had become a mere *caput mortuum*, destitute of almost all its original fertilizing substances, and deteriorated in quality almost as much as it was reduced in quantity. 3. The knowledge and means of chemically analyzing soils, by which we can ascertain their constituent parts, and thus learn what substances are wanted to increase their fertility. 4. The introduction of the root husbandry, or the raising of potatoes, turnips, mangel wurtzel, &c. extensively, by field husbandry, for feeding cattle, by which a given quantity of land may be made to produce much more nutritive matter than if it were occupied by grain or grass crops, and the health, as well as the thriving of the animals in the winter season greatly promoted. 5. Laying down lands to grass either for pasture or mowing, with a greater variety of grasses, and with kinds adapted to a greater variety of soils; such as orchard grass, *(Dactylis glomerata,)* for dry land, foul meadow grass, *(Agrostis stricta,)* for very wet land, herds grass, or timothy, *(Pleum pratense,)* for stiff clayey soils, &c. 6. The substitution of fallow crops, (or such crops as require cultivation and stirring of the ground while the plants are growing,*)* in the place of naked fallows, in which the land is allowed to remain without yielding any profitable product, in order to renew its fertility. Fields may be so foul with weeds as to require a fallow, but not what is too often understood by that term in this country. "In England, when a farmer is compelled to fallow a field, he lets the weeds grow into blossom and then turns them down; in America, a fallow means a field where the produce is a crop of weeds running to seed, instead of a crop of grain." 7. The art of breeding the best animals and the best vegetables, by a judicious selection of individuals to propagate from. These improvements, with others too numerous to be here specified, have rendered the agriculture of the present period very different from that of the middle ages, when it had sunk far below the degree of perfection which it had reached among the Romans.—*Encyclopædia Americana.*

Young Men's Department.

NATURAL PHILOSOPHY.

The object of *Natural Philosohphy* is, to observe and describe the phenomenon of the material universe, with a view to discover their causes, and the laws by which the Almighty directs the movements of all bodies in heaven and on earth. It embraces an investigation of the laws of gravitation, by which the planets are directed in their motions—the laws by which water, air, light, and heat are regulated, and the effects they produce in the various states in which they operate—the nature of colors, sounds, electricity, galvanism, and magnetism, and the laws of their operation—the causes which operate in the production of thunder, lightning, luminous and fiery meteors, hail, rain, snow, dew and other atmospherical phenomena. In short, it embraces all the objects of Natural History formerly alluded to, with a view to ascertain the causes of their varied appearances, and the principles that operate in the changes to which they are subject; or, in other words, the laws by which the diversified phenomena of universal nature are produced and regulated. One subordinate use of the knowledge derived from this science, is, to enable us to construct all those mechanical engines which facilitate human labor, and increase the comforts of mankind, and all those instruments which tend to enlarge our views of the operations of nature. A still higher and nobler use to which philosophy is subservient, is to demonstrate the Wisdom and Intelligence of the Great First Cause of all things, and to enlarge our conceptions of the admirable contrivance and design which appear in the different departments of universal nature. In this view, it may be considered as forming a branch of *Natural Theology*, or, in other words, a branch of the religion of angels, and of all other holy intelligences.

This department of natural science has been generally divided into the following branches:

1. Mechanics.—This branch, considered in its most extensive range, includes an investigation of the general properties of matter; such as so-

lidity, extension, divisibility, motion, attraction, and repulsion—the laws of gravitation, and of central forces, as they appear to operate in the motions of the celestial bodies; and on the surface of our globe, in the phenomena of falling bodies, the motions of projectiles, the vibration of pendulums, &c.—the theory of machines, the principles on which their energy depends; the properties of the mechanical powers,—the *lever*, the *wheel*, and *axle*, the *pully*, the *inclined plane*, the *wedge*, and the *screw*, —and the effects resulting from their various combinations. From the investigations of philosophers on these subjects, we learn the laws by which the great bodies of the universe are directed in their motions; the laws which bind together the different portions of matter in the surface of the earth, and which regulate the motion of animal, vegetable, and inanimate nature; and the principle on which cranes, mills, wheel-carriages, pile engines, threshing machines, and other engines are constructed; by means of which, man has been enabled to accomplish operations far beyond the limits of his own physical powers.

Without a knowledge of the laws of motion, and assistance from the combined effects of the mechanical powers, man would be a very limited being, his enjoyments would be few, and his active energies confined within a very narrow range. In a savage state, ignorant of manufactures, agriculture, architecture, navigation, and the other arts which depend upon mechanical combinations, he is exposed, without shelter, to the inclemencies of the season; he is unable to transport himself beyond seas and oceans, to visit other climes and other tribes of his fellow-men; he exists in the desert, comfortless and unimproved; the fertile soil, over which he roams, is covered with thorns, and briers, and thickets, for the haunt of beasts of prey; his enjoyments are little superior to those of the lion, the hyena, and the elephant, while he is much their inferior, in point of agility and physical strength. But when philosophy has once demonstrated the principles of mechanics, and introduced the practice of the useful arts, " the wilderness and the solitary place are made glad, and the desert rejoices, and blossoms as the rose." Cities are founded, and gradually rise to opulence and splendor; palaces and temples are erected; the damp cavern, and the rush built hut, are exchanged for the warm and comfortable apartments of a substantial mansion; ships are built, and navigated across the ocean; an intercourse is carried on between the most distant tribes of mankind; commerce flourishes, and machinery of all kinds is erected, for facilitating human labor, and promoting the enjoyments of man. And when the principles and practice, of " pure and undefiled religion," accompany these physical and mechanical operations, love and affection diffuse their benign influence; the prospect brightens as years roll on, and man advances, with pleasure and improvement, to the scene of his high destination —*Dick*

RISE AND FALL OF FAMILIES.

Every young man should start in life determined to act upon the motto, *Nil desperandum*, or *don't give up the ship*. Let him on commencing life, look around him, and see who are the courted and respected of society, and ask from whence they sprang. In ninety-nine cases out of a hundred he will find them to be those who at his age, possessed as little of the world's gear, as little of aid extraneous as he himself possesses; men who commenced the world with nothing, and whose advancement in life solely depended upon their own husbandry, frugality, integrity and strict attention to business.

Most young men consider it a great misfortune to be born poor, or not to have capital enough to establish themselves at once in good business; this is a very mistaken notion, for, so far from poverty being a misfortune to him, if we may judge from what we every day behold, it is really a blessing; for the chance is than more ten to one in favor of the success of such a young man over one who starts with plenty of money. Look back twenty years and see who commenced business at that time with abundance of means, and trace them down to the present day. How many of them can now boast of wealth and standing? On the contrary how many have become poor, lost their standing in society, and are passed by their once boon companions, with a look which plainly says, *I know you not*.

In this country, the wheel of fortune is constantly turning, and he who is at zenith this year, may be at nadir next, and excite no surprise. It is seldom that the third or even the fourth generation enjoys property or station in society which was won by the industry of the first. This constant change is the natural result of causes in continual operation. The first generation starts in life poor, but industrious and honest; he resolves to acquire property, and at the same time sustain a character that shall command respect. By dint of long perseverance in business, and the attainment of a high character for integrity and fair dealing, he succeeds, (such a man never fails,) and becomes wealthy. His sons succeed him, perhaps maintain the character of their father, and add to the wealth he left them —they were educated to business, and know how the property they enjoy was acquired. But their sons grow up, and from infancy find themselves in the lap of luxury and rocked in the cradle of ease; their minds are never turned on business—that is beneath them—they are engrossed in important nothings; scorn labor; run the rounds of folly, marry light headed and fashionable ladies, who have as sovereign a contempt for laborers, and the useful things of this life as themselves; dash away a few years in their carriages; lose their parents; divide the property; attempt to carry on business; are incapable of managing it; fail—struggle to keep up appearances and their places in fashionable life—are obliged to retire —wretched and miserable at home—and get through the world as they can, carrying always the appearance of shabby gentlemen, and being looked at askance by their former companions. Their children are even more miserable than themselves; being brought up with the idea that labor is degrading; and that they are a superior order, while necessity compels them to resort to some means of getting a living; pride and poverty are at war with them, and they drudge out a miserable and precarious life.—*American Magazine.*

MISERIES OF INDOLENCE.

None so little enjoy life, and are such burdens to themselves, as those who have nothing to do—for

"A want of occupation is not rest—
A mind quite vacant is a mind distress'd."

Such a man is out of God's order; and opposing his obvious design in the faculties he has given him, and the condition in which he has placed him. Nothing, therefore, is promised in the Scriptures to the indolent. Take the indolent, with regard to exertion. What indecision! What delay! What reluctance! What apprehension! The slothful man says " there is a lion without; I shall be slain in the streets " " The way of the slothful man is as a hedge of thorns: but the way of the righteous is made plain." Take him with regard to health—What sluggishness of circulation! What depression of spirits! What dullness of appetite! What enervation of frame! Take him with regard to temper and enjoyement—Who is pettish and fretful? Who feels wanton and childish cravings? Who is too soft to bear any of the hardships of life? Who broods over every little vexation and inconvenience? Who not only increases real, but conjures up imaginary evils, and gets no sympathy from any one in either? Who feels time wearisome and irksome? Who is devoured by ennui and spleen? Who oppresses others with their company, and their questions, and censorious talk? The active only have the true relish of life. He who knows not what it is to labor, knows not what it is to enjoy. Recreation is only valuable as it unbends us; the idle know nothing of it. It is exertion that renders rest delightful, and sleep sweet and undisturbed. That the happiness of life depends on the regular prosecution of some laudable purpose or lawful calling, which engages, helps and enlivens all our powers, let those bear witness who, after spending years in active usefulness, retire to *enjoy themselves*. Prayer should be always offered up for their servants and wives, and for themselves too. They are a burden to themselves.—*Rev W. Jay.*

RECEIPTS, from Oct. 25 to Nov. 25, inclusive.—Nos. under 10 not noticed.

Arcole,	O.	14	Jackson,	Ark.	11	*Newark,	O.	66
*Boston,	Mass.	79	*Jeffersonton,	Va.	22	*Philadelphia,	Pa.	214
Bethel,	Vt.	13	*Kirtland's Mills,	O.	17	*Princess Ann,	Md.	49
*Baltimore,	Md.	103	*La Porte,	Ia.	65	Port Chester,	W.Ch.	11
*Catskill, Green,		29	Litchfield,	Ct.	12	*Perrysville, Mad.		14
Clarksville,	Va.	13	Milwaukie,	W.Ter.	13	*Painsville,	O.	13
Clarksville,	Ga.	26	Madison, Mad.		15	*Suckasunny,	N.J.	13
Chillicothe,	O.	15	*Moore's Salt Works,	O	28	Sandisfield,	Mass.	29
Hill,	N.H.	13	*Murfreesboro,	Ten.	128	Schoolcraft,	Mich.	12
*Hartford,	Ct.	20	Monroe,	Ga.	11			
Huntsville,	Ala.	33	*New-York city,		221			
*Hamilton, Mad.		22	Norfolk,	Va.	11			

Total number of volumes subscribed for during the last month 559.
* Including former payments.

PRICE CURRENT.

ARTICLES.	New-York. Nov. 25.	Boston. Nov. 22.	Philadel'a. Nov. 20.	Baltimore. Nov. 18.
Beans white, bush........	2 00.. 2 25	1 37.. 1 75	1 37..1 62	1 25..1 50
Beef, best, cwt...........	11 00..13 50	5 00.. 6 50	16 0..18 0	6 00..7 00
Pork, per cwt............	8 00..10 00	7 00.. 9 00	20 0..21 0	7 00..
Butter, fresh, pound,.....	18.. 22	20.. 25	14.. 18	20.. 25
Cheese, pound, ...	7.. 10	8.. 9	9.. 10	9.. 10
Flour, best, bbl......	9 50..10 00	9 50..10 25	9 75..10 0	11½ ..12½
GRAIN—Wheat, bushel, ..	2 00.. 2 10	....	2 00..2 12	2 10..2 18
Rye, do. ..	1 12.. 1 16	1 25.. 1 33	1 00..1 25	1 00..1 10
Oats, do. ..	48.. 50	55.. 58	.. 43	37.. 38
Corn, do. ..	1 12.. 1 13	1 06.. 1 14	1 02..1 03	1 00..1 06
SEEDS—Red Clover, lb...	13	15.. 16	9.. 11	12.. 13
Timothy, bushel,.	1 82.. 2 00	2 75.. 3 00	2 00..3 25	3 50..4 00
WOOL—Saxony, fleece, lb.	75.. 80	50.. 55	65.. 73	40.. 50
Merino, lb..... .	50.. 68	45.. 47	45.. 50	35.. 40
1-4 and com. lb...	40.. 50	30.. 33	40.. 44	28.. 30
Sheep, ...	2 50.. 5 00	1 67.. 3 00		
Cows and Calves,........	22 00..42 00	23 00..42 00		30 0..45 0
Cotton,...........	9.. 13	....	9.. 14	11.. 12

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN.

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

Vol. IV. ALBANY, JANUARY, 1838. No. 11.

J. BUEL, *Conductor.*

☞ *Office No. 3 Washington-street, opposite Congress Hall.* ☜

TERMS.—Fifty Cents per annum, to be paid in advance.

Special Agents.—L. & R. Hill, Esqs. Richmond, Va.; Messrs. Bell & Entwisle, Alexandria, D. C.; Gideon B. Smith, Baltimore, Md.; Judah Dobson, Philadelphia, Pa.; Messrs. Hovey, Boston, Mass; Israel Post & Co. Booksellers, 88 Bowery; Alexander Smith, Seedsman, Broadway, N. Y. Alex. Walsh, Lansingburgh, gratuitous agent. Any gentleman who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

☞ *To agents and others.*—A great number of accounts are now due to us, which, though individually small, form an aggregate which would enable us to pay our printer—money which we owe him, and which he wants. We wish to settle all accounts of the current, before we commence our next volume—where it is practicable. Our mail accounts exceed six hundred in number.

☞ A list of Agents for the fifth volume, will be inserted on the cover, which will accompany the next, or February number.

THE NEW YEAR.

On the departure of the old, and the advent of the new year, custom imposes upon us the pleasing duty of tendering to our patrons the congratulations of the season, and warrants us in communing with them on the past, with a view to our mutual benefit in the coming year: We therefore greet them all with "a happy New Year;" and that we may contribute our mite towards the fulfilment of this wish, we invite to a retrospective view of the past year, the better to enable us to avoid its errors, atone for its omissions, and profit from its experience.

The duties of life are many and diversified. They are religious, moral, social and relative. They relate to our Creator, to society, to our families, and to ourselves. Leaving the consideration of the first to more suitable and competent hands, and to the silent and unerring admonitions of conscience, let us direct our attention to those duties which fall particularly within the purview of our journal. And,

1st. *As to our business or calling.*—Have we improved in this? Have we augmented the fertility of our soils, and increased their products,—by draining, manuring, alternating crops,—by clover and root culture, and by adopting a regular system of management? Have we improved our farm stock, by breeding from the best individuals, or by introducing better breeds—and our farm implements, by the use of those which most abridge labor, and which perform the best work? And above all, have we improved the mind, the great lever which multiplies power, in that knowledge which is the guide and solace of labor, and which imparts dignity and independence to man? If we have not done all or any of these things, we have left undone those things which we might have done, and which in general we ought to have done, to advance our prosperity and usefulness. The agricultural periodicals of the day proffer to our aid the improvements and best practices in husbandry of the agricultural world, and instruct us in the great principles of nature upon which the most enlightened and successful farming is based. These publications may be likened to the seed which is sown upon a good soil—the outlay is trifling—the income twenty, fifty and an hundred fold. The march of improvement, in all the arts of productive labor, is steady and certain; and he that will not go forward upon the flood of tide, must expect to be swept back by its ebb.

2d. *As regards our relative duties.*—These involve great responsibility; and our enjoyments in life, and the welfare of those entrusted to our charge, materially depend upon the fidelity with which they are performed. In these matters the eye affords a stronger medium through which to convey instruction than the ear; and children more readily imitate what they *see*, than profit by what they *hear*. Precept may be likened to the moon, which shines with borrowed light, but which neither warms nor animates—example to the sun, which vivifies all within the sphere of its influence. We hardly need be reminded of the strong natural bias we have to whatever we term our own; and that we often commend, or justify, at home, what we disapprobate, or find fault with, abroad. If the importance of the relative duties of life have escaped our observation, or those duties have been neglected, there is ample room for our improvement in the coming year.

3d. *Of our social duties.*—These relate to our neighbor, and to society at large; and in the aggregate they form national character, and constitute national power. The isolated being, who extends not his charities nor his kind offices beyond the circle of his family, mistakes alike his duty and his true interest. The command is, "love your neighbor;" and it was a governing principle with Franklin, that to do good to others, is to fulfil one of the great duties of life. The reward, even in life, is sure. The consciousness of having contributed to the promotion of virtue and human happiness, *is* a sure reward, to all who justly apprehend the difference between virtue and vice. The social duties are performed in a variety of ways. Individual example, in habits of industry, frugality and temperance —in acts of kindness, benevolence and liberality—in the practise of honesty and integrity in our dealings—in affording friendly counsel and pecuniary aid to the unfortunate—in the diffusion of useful knowledge—and, generally, in efforts to lessen the evils, and to multiply the substantial enjoyments of society;—individual example, we say, has, in these matters, an imposing and salutary influence, in a greater or less degree, according to our standing and influence in the social circle. There is no man, however humble be his condition in life, whose example does not exert an influence, for good or for evil, upon some of the circle of his acquaintance. Let as all then endeavor to throw ourselves into the scale for good, that good may more abound among us; and if we have neglected any of this class of duties, to make amends before another new year.

We have gone through the retrospect we designed to take. If the considerations we have suggested for improvement, should influence any one —and we hope they may many—to become a better farmer, a more watchful and exemplary parent, or a more useful citizen, during the coming than he was during the past year, then shall we consider the time employed in penning these remarks as having been profitably spent.

AGRICULTURAL REPORT FOR 1837.

The season of vegetation, during the last year, may be denominated a cold, and comparatively wet one. But a few hot days were experienced, and the quicksilver, at no time, rose above 92° of Fahrenheit. The mean temperature, it is believed, was some degrees lower than in ordinary seasons. In some districts, frosts early in August partially injured tender crops. Other districts were not visited by frost till the middle of September, and others again not till the night of the 3d of October. Low flat districts and localities were visited most early by frost, while those more elevated, where the winds had full sweep, were last to feel its blighting effects. This was owing to the humidity and comparative stagnation of the air in the vallies. In consequence of the low temperature of the summer, vegetation was from ten to fourteen days later than usual; many fruits and vegetables, natural to warmer climates, but which have hitherto been generally brought to maturity in our gardens, and some that are indigenous in our latitude, as the hickory nut, black walnut and honey locust, did not attain maturity before the intervention of frost. The Isabella and Catawba grapes, the melon, tomato, egg plant, okra, and other tender productions of the garden, but partially ripened, except where their growth had been facilitated by glass or other artificial protection.

We will remark here, that an opinion is entertained by many, seemingly based upon the Huttonian theory of the earth, that our climate is mutable; that there is a gradual but continual lowering of the temperature of the globe; and that it consequently becomes necessary to make a gradual transition of plants from higher to more temperate latitudes. Dr. Muse, in an address to the Dorchester Agriculture Society, Maryland, imputes to this cause, though we think erroneously, the failure of the winter wheat crop in that state, in late years. The failure of the wheat crop, in that and other districts of our country, though in part owing to the mutations of climate, we think is principally to be ascribed to defective husbandry—to the exhaustion, in the soil, of the specific food of this grain. There are various geological and historical facts, adduced in favor and against the Huttonian theory; but this is not the place, nor is it our intention, to recapitulate them, or to express an opinion in the matter. We merely allude to the subject incidentally, and pass to the prominent product of our soil—

Wheat.—On the breaking up of winter, this crop looked bad, in most parts of our country. The Hessian fly had been at work, particularly in the middle states; the winter had been unpropitious, and the spring opened unfavorably. The fine weather in May, however, seemed to renovate the crop, and the prospect became cheering till the eve of the harvest.

But then came the blight, which, together with the grain worm, very much lessened the product in this state. From the high price of bread stuffs last year, however, larger quantities were sown than usual; and the product, in the west, has been an increase upon the last crop. In the valley of the Mohawk, and upper valley of the Hudson, the crop has been diminished by the grain worm. In the middle states the crop was less than, and in the western states over, a medium one. In Maine, in consequence, it is said, of the premiums offered by the legislature to the cultivators of this crop, the product has been greatly increased, though the grain worm has done considerable damage there.

The spring varieties of wheat seem to be coming into repute; and those of recent introduction, as the Italian, Siberian, Black sea and tea, appear well adapted to our various soils, and promise amply to reward the labor of those who cultivate them. The demand for the first named has been uncommonly great, and if it continues, as the result of the trials with it seem to lead us to expect, it will soon constitute our principal crop. Many hundred bushels of the Italian variety were sent down the Hudson, last fall, as seed, destined to the middle, southern, and eastern states.

Rye has been a fair crop, we believe in every section of our country. The late sown is perhaps an exception to the remark. So far as our observation went, this last was light in product, which we, on conjectural grounds, ascribed in great part to the depredations of the grain worm.

Indian Corn, has been better than it was in 1836, in the vallies of the Hudson and Mohawk; in the northern and western parts of this state it has been light; in the southern, middle and western states, perhaps above a medium yield. Taking the country at large, there has been an increase of crop from last year. The early varieties are more sought after, better attention is being paid to preparing for and cultivating the crop, and harvesting by cutting the stalks at the ground, at the usual time of topping, is found to possess advantages over the other modes of saving the crop. The southern practice of stripping the blades from the stock, while the grain is in milk, is certainly a bad one.

Oats have probably never been better in the north; the crop has been abundant, and grain heavy. The constant and increasing demand for this grain, and the high price which it bears, in consequence of the great number of horses employed on the canals and elsewhere, are likely to increase and improve its culture. Now that a standard weight is fixed by law, it becomes the interest of the farmer, if it was not before, to cultivate the heavier varieties, and to bestow upon them better culture than formerly. There is no grain more free from disease and insect enemies than oats. The practice of making oat meal, for family use, and for market, has obtained to a considerable extent, particularly in Delawaro and Saratoga counties.

Barley has been more than a medium crop, and its culture is on the increase in northern New-York. Barley flour has been considerably used, both for bread, and as a substitute for buckwheat in griddle cakes. It is wholesome and nutritious, and for cakes is preferred by many to buckwheat.

Buckwheat was sown in unusual quantities, and where it was not injured by frost, it has afforded a great yield.

Potatoes, although they promised a great crop, from the growth of vines, gave nevertheless but an ordinary yield. The quality is good; though we cannot refrain from again pressing our recommendation to farmers to cultivate only the best and most farinaceous kinds. Such are the most grateful and healthy in the family, bring the best price in market, and are withal the most nutritious for farm stock.

Root crops, that is, the culture of the ruta baga, mangold wurzel and carrot, have been greatly increased the past year; and we hesitate not to say, the progress in this branch of our husbandry will be steady and rapid. The season has been propitious, and the product abundant. Some of our neighbors, novices in the culture, have been surprised and gratified with a yield of a thousand bushels the acre. We repeat that these roots, we speak from personal experience of the ruta baga, are an excellent winter food, either in whole or in part, for neat cattle, horses, sheep and pigs, and they may be made greatly to lessen the expenditure of grain, in the economy of the farm. For the table the Swede is decidedly superior to the common turnip, after the setting in of winter. The latter then deteriorates—the former improves with keeping.

Peas have given a tolerable fair yield. Our own practice does not enable us to speak of the relative profits of this crop; but we understand it makes a very good return, particularly in elevated districts exempt from the pea bug.

Hay has varied in its products—in some districts not giving so good a return, and in others a better, than in 1836. On the whole, the crop may be put down as less than a fair average one. We again recommend the breaking up of old meadows, where the product has become small, and of subjecting them a few seasons to the plough. Those who cannot, or will not, do this, may improve their meadows by sowing grass seeds, giving them a light top dressing of dung or ashes, and of then scarifying with Concklin's Press Harrow, or a like implement. By the bye, Mr. Concklin has improved his press harrow, and reduced the price, from one hundred to sixty dollars.

On the whole, taking into view all the products of the soil, the yield may be deemed full an ordinary one; for although there is a manifest deficiency in some kinds, an unusual quantity of ground was put in crop, and the harvest in other kinds has been bountiful. Our system of farming is evidently mending—improved farm implements have been multiplied, and their use greatly extended—more attention has been bestowed on select animals for breeding—better seeds are selected—root and clover culture has been extended—useful information is coming more into demand—and a new zeal is manifested both for the pursuits and improvements of husbandry.

To prepare the haws or seeds of Thorns, that they may grow the first year.—Separate the pulp from the seed, in winter, and keep the latter moist, either exposed to the alternations of freezing and thawing, or not, till the ground can be prepared for their reception in the spring. They will soon germinate and grow. For confirmation of the efficiency of this mode of management, see the authorities of Thomas Main, Caleb Kirk and John A. Chiswell, which will be found under the heads of "Live Fences," and "Correspondence."

On the means of improving our Agriculture.—We bespeak an attentive perusal for the article under this title, published under the head of "Extracts," from the pen of Sir John Sinclair. We shall, in our next, give another extract from the same authority, *On promoting the collection and diffusion of useful knowledge.* These articles are peculiarly adapted to the present season, when the legislatures of most of the states are in session. The facts and suggestions which they contain, are of deep interest to our country;—they demand the notice of the farmer, the merchant, the manufacturer, and the mechanic; and are specially addressed to our statesmen and legislators, who are charged with the great interests of the commonwealth. No man, perhaps, has done more to advance the agricultural improvement, and consequent prosperity of his country, than the writer of these articles. He was instrumental in establishing the British Board of Agriculture, was one of its most useful members, and was particularly serviceable in collating, arranging and publishing the multifarious information and facts which it collected, in his "Code of Agriculture," one of the most useful works upon husbandry extant. He was the correspondent of Washington.

To avoid the Bee-moth.—Keep your hives of bees on the ground during the summer months. See the article on this subject, signed C. D. under "Extracts."

Root Culture.—R. Harrison, Jr. writes us from Wheatland, Monroe,—"My root crop has come in well this season. I have about 2,000 bushels of ruta baga, sugar beet and mangold wurtzel. Some of the ruta baga weigh 17 lbs.—sugar beets 15 lbs. I am so well pleased with my root crop, that I intend to enlarge it next year." These roots are probably the product of about three acres of land. Feeding at the rate of two bushels a day—120 lbs —to a bullock, they will suffice to feed ten cattle *one hundred days*, comprising the main part of the winter months—and to *fatten* them. The same ground in hay, estimating the product at a ton and a half per acre, and the daily ration of each beast at 28 lbs. would barely *keep* ten cattle, without fattening them, a period of *thirty-two* days, or one-third the time that the roots would feed and fatten them.—The manure, with the root feed, would be worth thrice what it would be if the cattle were fed upon hay alone. Can it be wondered, that the English farmer so highly extols the root culture?

PEAT EARTH, AND PEAT ASHES,

IMPORTANT SOURCES OF FERTILITY TO THE FARM.

We assume it as a well established truth, that every vegetable substance is capable of becoming food for farm crops, whenever it is rendered soluble, that is, when it becomes dissolved and blended with the liquids of the soil. Putrefaction, in a great measure, renders vegetable matters soluble, and consequently fits them for the food of plants. Combustion produces in a measure like effects, though in most cases with a considerable loss in fertilizing matters. Peat earth, or swamp muck, though differing essentially in quality, is considered as an inert mass of half-corrupted vegetable matter, requiring to be brought in contact with fermenting matters, or with fire, to render them soluble. Fire, to be sure, would seem to destroy the vegetable matter, and consequently the power of peat earth to impart fertility; but it will be seen from the analysis of peat ashes in our last, that in them it rather concentrates the elements of fertility—in the form of salts, which are readily dissolved by the humidity of the earth, and become highly enriching to the soil. Combustion renders the mass lighter, and of course more portable. Peat earth differs greatly from green vegetables, and from yard dung—not so much in its elementary matters, as in its tendency to putrefaction. The first putrify spontaneously, in a summer temperature, under the influence of air and moisture; the latter do not putrify spontaneously under the like agents. And hence the importance of directing the farmers attention to this subject.

When applied directly to soils, peat earth and moory soil are so extremely slow in decomposing, that they do not impart but little fertility, although the dressing be abundant; yet they nevertheless mechanically improve stiff soils, by rendering them more porous. But spread in the cattle yard for a season, they become intimately blended with stimulating substances, and fitted to develope all their fertilizing powers. Lord Meadowbanks gave to the subject a scientific investigation, and after various experiments, left directions for the preparation of peat earth in composts, with dung, &c. of which we extract the following summary from British Husbandry.

COMPOSTS OF PEAT EARTH.

"The peat of which the compost is to be partly formed, should be thrown out of the pit some weeks, or even months, previously, in order to deprive it of its redundant moisture. By this means it is made lighter and less compact when made up with fresh dung for fermentation; and accordingly less dung is required for the purpose than if the preparation be made with peat recently dug from the pit. It should be taken to a dry spot, convenient to the field which is to be manured, and placed in a row in the place intended for the midden. When ready to be made up into compost, half the quantity of dung must be carted out, and laid in a parallel row at such a distance as will allow the workman to throw the rows together by the spade; the compost may thus be laid in the centre, and will form the area of the future heap.

"Let the workman make a layer or bottom of peat about six inches deep, and extending further than the base of the proposed midden, (which is but another term for dunghill) which is to be thrown up in alternate layers: first, ten inches of dung over the peat, then peat six inches, dung four inches—thus diminishing each layer of dung until the heap rises to a height not exceeding between three and four feet, when the whole should be covered—top, ends and sides—with the remains of the peat; the whole to be put loosely together, and made quite smooth.

In mild weather, seven cart loads of common farm yard dung, tolerably fresh made, is sufficient for 21 cart loads of peat moss; but in cold weather, a larger proportion of dung is desirable. The dung to be used should either have been recently made, or kept fresh by the compression of cattle or carts passing over it; and as some sorts of dung, even when fresh, are much more advanced into decomposition than others, it is necessary to attend to this, for a much less proportion of dung that is less advanced will serve the purpose.

After the compost is made up, it gets into a general heat, sooner or later, according to the weather and the condition of the dung: in summer, in ten days, or sooner; in winter, not perhaps for so many weeks, if the cold is severe. It always, however, has been found to come on at last; and in summer it sometimes rises so high as to be mischievous by becoming fire fanged. Sticks should therefore be kept thrust into different parts, as by drawing them out occasionally the progress of the fermentation may be ascertained; and if so rapid as to approach to blood heat, it should be either watered or turned over, and a little moss be added. The heat subsides after a time, and with variety proportioned to the season and the perfection of the compost; but, when cool, it may be allowed to remain untouched till within about three weeks of being wanted: it should be then turned over, upside down, and outside in, and all the lumps broken; after which, it comes into a second heat, but soon cools, and may be taken out for use. In this state the whole appears a black mass, like garden mould, and, it is said, may be used, weight for weight, like farm yard manure, with which it will fully stand a comparison throughout a course of cropping.* Sixteen single horse cart loads per acre are, indeed, said to have produced comparatively as good a crop as twelve of farm yard dung.†"

EXPERIMENTS.

"The following experiments upon composts of peat combined with various substances, communicated to Sir John Sinclair by Mr. Arbuthnot, of Peterhead, will tend to show the power of fermentation in occasioning its decomposition, and its consequent probable effect upon the land:—

1. Peat moss was mixed, in the month of November, with rotten sea-ware, in the proportion of 300 cart loads of the former, to 50 of the latter. In January, the midden, having attained the heat of 90° Fahrenheit, was turned; in March, the operation was repeated; and in the latter end of April, the compost was spread upon 18 acres of land, and immediately ploughed in. On the 15th of May, the field was sown with barley, which produced one-third more than any similar crop from the same land when manured with dung.

2. Another field was manured in the same proportion of composition, with equal parts of cow-dung and sea-ware; the ground was planted with potatoes, and the produce was large and of excellent quality. Turnips, mangold wurtzel, and cabbages, were tried with the same manure, and the crops were all luxuriant.

3. The foundation of a midden was laid on the 1st of May, with 800 cart loads of peat moss, and 150 of cow dung. The cattle had been littered with green rushes; which, although they had lain in the dung pits for more than nine months, showed no signs of decomposition. About the middle of June, 50 hhds. of salt water were, therefore, thrown upon it, and the fermentation then began very quickly. The heap was first turned in the middle of July, and some newly slaked lime added to it. By the latter end of August, it was all grown over with chickweed, when it was again turned, and showed the appearance of a total decomposition of all the mass, into mould of a uniform, smooth, soapy like consistence, of a strong smell.

4. Consisted of 300 cart loads of peat moss and 50 of town dung. The decomposition was completed as soon as in the former experiment; but the appearence was not equal throughout.

5. Was composed of 200 cart loads of rough peat sods, with a leafy sward, mixed together in July with 30 loads of horse dung, and the fermentation came on more rapidly, than in either of the foregoing experiments; probably, however, owing partly to the heat of the weather, as well as to the nature of the dung.

6. In this experiment, 300 cart loads of peat moss were put in three layers of equal quantity. The foundation was laid one foot deep with moss, and then 150 gallons of the urine of cattle was thrown upon it. The fermentation came on almost instantaneously, attended with a hissing noise. The other two layers were then put on, when the same effect was produced; eight days afterwards, it was turned, and to all appearance was completely fermented."

Having thus furnished to our readers the information we deem most important, to enable them to employ peat earth as a means of enriching their uplands, we shall proceed, in our next, to speak further of the manner of bringing peaty soils into a productive and profitable state.

INFLUENCE *of* EDUCATION UPON AGRICULTURAL IMPROVEMENTS

Among the prominent causes of the superiority of British husbandry, enumerated in Brewster's Encyclopædia, is the suitable education which the principal farmers receive in modern times. The rule will hold good every where, that improvement in agriculture will be in proportion to the attention bestowed upon the education of the agriculturist. "A man of uncultivated mind may hold a plough, or drive a harrow" our author remarks, "in a sufficient manner; but he will seldom introduce an improvement, or be the means of effecting any change in the system of rural economy. In former times it was objected, that farmers were an obstinate and bigoted class of men—[as is too much now the case with us] averse to every kind of innovation upon established practice, and persisting in ancient practices, even after their deficiency and inutility had been ascertained in the most decisive manner. Whatever truth there might formerly be in the objection, its force is now completely removed; there being no set of men whatever more open to conviction, or more willing to adopt new practices, than British farmers of the present day. This change of disposition has been accomplished by a general circulation of agricultural knowledge, since the establishment of the national board of agriculture; by numerous periodical publications upon rural economy; and by that increase of wealth which flowed from the exertions of the farmer, and which naturally stimulated a search after new improvements."

Extent and effect of agricultural improvements in Scotland.—Since the conclusion of the American war, in 1782, improvement has proceeded with singlar rapidity in every district; and while the rental rolls of proprietors have been doubled, tripled and quadrupled, the condition of the tenantry, and of the lower ranks, has been ameliorated almost in a proportional degree. These circumstances are sure tokens of agricultural prosperity, and demonstrate in the most favorable terms, that husbandry is a main pillar of the state; and that the happiness and welfare of the community depend greatly upon the manner in which the art is executed. No nation, whose husbandry is feeble and imperfect, can be regarded as really prosperous, however considerable may have been the advances they have made in other arts, because, when the art of raising food is neglected, all others must ultimately be forsaken. In short, to promote and encourage husbandry, to remove every obstacle that stands in the way of exercising it, and to secure those concerned in carrying on the art, are duties obligatory upon the government of every country; and according as these duties are discharged, so will the wisdom of such a government be estimated, by every man, who feels for the prosperity of the state, or is attentive to the sources from which that prosperity proceeds.—*Brewster.*

Agricultural Surveys.—The numerous agricultural surveys, executed under the authority of the [British] Board [of Agriculture,] were of singular advantage, because they brought to light the practices of every county; and, while they pointed out the obstacles which lay in the way of improvement, they stated the most effectual methods of removing them. The very collision of argument, which such discussions occasioned, incited agriculturists to investigate the principles of the art which they professed, and induced them to search after new channels of improvement.—*Brewster.*

---

* Essay by Lord Meadowbank, pp. 148 to 151. To every 28 loads of compost, when made up, it is also recommended to add one cart load of ashes, or, if these cannot be had, half the quantity of finely powdered slaked lime may be used; but these additions are not essential to the general success of the compost, though they will tend to quicken the process.

† Gen. Rep. of Scotland, vol. ii. n. p. 550. In Holland's Survey of Cheshire, it is also mentioned, that three tons of compost, made from moss and dung, have been spread on part of a meadow, and three tons of rotted dung upon an equal portion of the same field, it was found that, although the grass on that part which was covered with dung only, came up as soon, and upon the whole grew rather higher than that on the other part, yet the latter was of a darker green, and yielded nearly an eighth more when it came to be cut.

HEDGES—OR LIVE FENCES.

We resume this subject, from our October number; but before we proceed to the second branch of the subject, viz. the manner of procuring the plants, we will speak of some other plants which are or may be used for hedges.

The ELM, although ranking among the first class of forest trees, seems to us adapted to this purpose, particularly the species commonly known by the name of slippery elm, *(Ulmus fulva* of Mich.) which is smaller in its growth than the common American kind. Although this plant is not armed with spines, the common requisite of a hedge plant, its branches and top are so flexible that they may be readily bent to a horizontal, or recumbent position, & interwoven with each other, without materially obstructing their growth; and when once interwoven in this way, and the fence having attained a proper height, they present a barrier to the strongest animals. Some plants accidentally mixed with our honey locusts, have given us a high opinion of their fitness for hedges.

Another plant which is used considerably in Europe, in wet grounds, and which may be found useful in like grounds here, is the ALDER, *(alnus;)* but this is calculated to succeed best here, as it does there, planted on a bank and ditch. On grounds natural to its growth, the WHITE BIRCH, *(Betula alba,)* cannot fail also of succeeding well. We have seen tolerable fences made of this plant, by merely lopping them in a line; and if they are planted and trained, they must make a fence.

2. TO OBTAIN HEDGE PLANTS.

The most certain mode is to plant the seeds, and to raise the plants in nursery beds. Plants of the indigenous thorn, and of the red cedar, may often be obtained in large quantities from the pastures and woods. We have a good hedge of the former, the plants of which were obtained in this way. When such are used, they are cut down to within a few inches of the ground when they are planted. The prim and Cherokee rose are readily propagated by cuttings. They may be planted on the site of the intended fence, if the ground is properly prepared, and afterwards kept clean. The alder and white birch are best taken in stools, or single plants, from the grounds where they grow, and where they are to serve as fence. The Japan quince, as we before observed, may be propagated by cuttings of the root. But as regards the wild crab, the honey locust, the beech, Osage orange, elm, buckthorn, and generally the common thorn, the principal reliance is to be had upon plants raised from seeds in the nursery. Plants of the European hawthorn are annually imported in quantities. They are obtained in Great Britain at 2s. and 2s. 6d. per thousand, one year old. The seeds of the thorn, of the wild crab, of the red cedar, of the buckthorn, and of the beech, may be gathered in the autumn, and do best if immediately planted. They will not generally grow till the second spring, except the crab, and perhaps the beech. These seeds may all be preserved and planted in the spring, and in that case, they should be so kept that they do not heat. The seeds of the elm should be gathered as soon as they fall, which they do here the last of May, and be immediately sown. They grow quick, and attain six to twelve inches height the first season.

The seed beds should consist of rich earth, well dug, pulverized and raked. They should be from three to four feet broad, to permit their being easily wed. The seed may be sown either broad cast upon them, or in drills from twelve to eighteen inches apart, pretty thick, and covered with an inch or more of good mould. The seed beds should be kept free from weeds, and after a season's growth, the plants should be thinned, and either the stronger ones placed in nursery rows, three feet apart, and with intervals of one foot in the rows—or the smaller plants should be drawn, so as to leave intervals of three or four inches between those remaining, and pricked out in separate beds. If plants are left more than one season in the seed bed, where they stand thick, they grow slender and feeble, their roots are contracted, and they are not likely to do well when put in hedge. Plants are most profitably put in hedge when they have attained the size of the little finger, which is generally at the end of the second or third season's growth. When transferred from the seed beds, the tap roots should be shortened to four or six inches, in order to induce the plants to throw out side roots, or to multiply them close to the stem. The whole of the plants ought to be removed from the seed beds the second year, and their roots shortened, though they be not large enough to put into hedge. Plants are more easily taken care of in nursery than they are in hedge, and should therefore be kept in the former till they are strong enough to shoot with vigor.

We append to these remarks, Thomas Main's mode of growing the haws of our indigenous thorns, the first season after they are gathered Mr. Main was a practical nurseryman, residing in the District of Columbia. He raised large quantities of quicks, many of which were purchased and planted in the neighborhood of Troy. The statement is entitled to full credit. We copy it from the American Farmer of 1821:—

"The seeds," says Mr. Main, "are to be extricated from the berries, either by hand rubbing, or any other means. I commonly put them in a trough, and mash them with a wooden pestle, taking care to proportion the strokes thereof so as not to break the stones, and turning over the mass repeatedly during the operation, until all the berries are broken—after which the stones are to be washed from the pomace. Put a gallon or two of the mass into a washing tub, filled with water—let it be well broken and rubbed by the hand therein—pour off the water gently—the pomace and light stones will flow over along with it, and the good seed will remain at the bottom. It will be necessary to repeat this, say ten or twelve times, until scarcely any thing remains but the clean stones. They are then to be put in a deep square box, that will hold them with ease, so that the quantity of seed may not reach within some inches of the brim. The box ought to be loosely made, or a few gimlet holes bored in the bottom, to permit the water to drain from the seeds. It is then to be placed in some secure situation out of doors, in the coldest exposure that is convenient; and the seed in the box being covered with some moist oak leaves, or green moss, they are to remain so during the winter.—Ground squirrels and mice are fond of these seed; the box ought, therefore, to be secure from these animals. It is not necessary to mix any mould with the seed, neither is it material how often or seldom they are frozen during the winter.

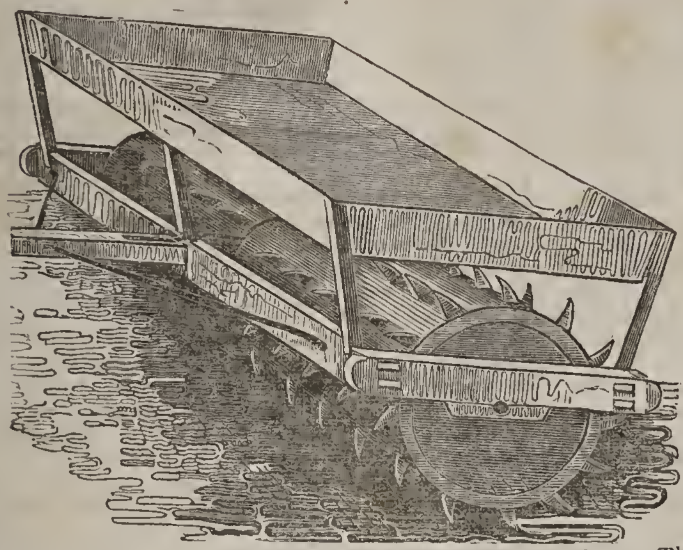
"At the approach of spring, the seed are to be inspected every two or three days, say about the middle of March, [middle of April in lat. 42°,] and as soon as they feel slimy on being handled, it indicates that the shells of the stones are about to open. The weather being favorable, the ground is then to be digged and prepared for the reception of the seed. So soon as the small point of the rootlet of *some of the seed* appears protracted, it is then just the time, weather permitting, to sow them. Every gardener knows that the beds ought to be about four feet wide, and that the alleys should be from fifteen to eighteen inches. The seed ought to be rolled in plaster of Paris at the time of sowing, and scattered about an inch apart—half an inch of fine mould is sufficient for their covering. The plants will appear in a few days, if the weather is favorable. It is scarcely necessary to add, that to produce fine plants, clean and careful weeding is indispensable. It will save a whole year's trouble and time afterwards. The process may be summed up in one short sentence: Clean the stones from the berries, and keep them damp through the winter."

We now add, from the same excellent and pioneer agricultural periodical, conducted by John S. Skinner, John Taylor's, of Caroline, Va. method of forming a red cedar hedge:—

"The cedars should be transplanted in the three winter months, and in March. [We will venture to recommend here, March, April and May.] They should be taken up [in the fields,] in a square sod, of the size of a spade, and deposited in a square hole to be made by a similar spade, without breaking the sod in which the young cedar stands, so as to fit as nearly as possible. Any little crevices made by not filling the hole exactly, are to be well closed, with part of the earth coming out of this hole, and the rest of this earth is to be crumbled close around the young cedar.—The sod with the young cedar is to be taken up as deep as possible, in doing which the spade ought to be driven perpendicularly into the ground, on three sides of the young cedar, but a slant on the fourth, so as to cut the tap root, least in raising the sod this tap root should hold the cedar, and so loosen its roots. The smaller the cedars are, the better. This will aid the closeness of the hedge at bottom. The cedars are also to be two feet apart in the rows, but instead of standing opposite to each other, [for they are recommended to be planted in double rows,] across the fence, those in one row are to be placed opposite the centre of the vacancies in the other. At one year old, they should be topped with garden shears to one foot high, and the side branches clipt to within six inches of the stem. This is to be done yearly or half yearly, except at each dressing the cedars are to be left four inches higher and wider, until they acquire the heighth and width at which they are to be kept by yearly dressings. As some branches become too large for garden shears, the person dressing the hedge has a knife made of a piece of old scythe blade, [the bill hook is better than either,] to cut off these. An annual dressing is indispensable to the thickening of the hedge. The richer the ground the sooner the hedge will arrive at perfection."

Kyanizing wood.—This newly discovered process of preserving wood and fabrics composed of vegetable fibre, is likely to become very serviceable, and is already extensively employed in Great Britain. Its efficacy in preserving timber from the dry rot, had been amply demonstrated in various experiments made in the ship yards of England. Wood and vegetable fabrics, which had undergone the preparatory process, had been exposed for years, to the influence of moisture and bad air, without sustaining any apparent injury, while the like materials, not submitted to the process, suffered rapid decay and destruction. The process of kyanizing, as it is now termed, consists in immersing the wood or cloth, for a few hours or days, in a mixture of water and corrosive sublimate, in the proportion of one pound of the latter to five gallons of water. The mercury combines with the albumen of the vegetable matter, its most perishable part, and renders it insoluble, in the same manner that tan renders the gelatinous matter in hides so. Wood, or linen and hempen fabrics, which are to be exposed to the weather, particularly in humid situations, or in the earth, may, by this process, be preserved for a great length of time.

CONCKLIN'S PRESS HARROW—Fig. 46.



We give above a cut of this implement in its improved form. The price has heretofore constituted an objection to its purchase. Mr. C. has now substituted three inch oak plank, for the cast iron, which forms the cylinder, and lengthened the teeth, and has consequently been enabled to reduce the price to $60. We have no hesitation in expressing our belief, of the great utility of this implement to the farmer, particularly on clay farms. Its uses, on such, will be, 1. To raise a tilth upon the furrow, to supersede cross-ploughings, which besides, more or less, waste the fertilizing properties of the soil; and 2d. To scarify old meadows and pastures, which the owner does not feel willing to break up, and which will serve to loosen the soil, destroy moss, and cover the grass seeds which may be sown. It matters little whether the implement is called a *Press Harrow*, or a *Spiked Roller;* it is undoubtedly a useful machine in our husbandry, and Mr. Conklin deserves credit for bringing it into public notice.

Geology for Schools.—Professor MATHER, of the State Geological Corps, has just published "*Elements of Geology, for the use of schools,*" 140 pages, 12 mo. From the hasty perusal we have given it, we are of opinion it will be a useful class book for the senior class of boys. The character of soils, and their natural adaptation to particular crops, are in no little measure ascertained from the character of the accompanying rocks, or of those whose integrant parts principally compose them. Transition rocks give a better soil, ordinarily, than those of the primitive class; and secondary, a better one than transition. With the additions that are contemplated in a forth-coming edition, giving to the subject a more practical application, this little work will be decidedly useful. A few copies have been left in our charge, to be given to teachers who may wish to examine the work with a view of judging of its fitness as a class book.

The Vine.—The best cultivators of the vine in the United States, that we know of, are Mr. Hebemont, of South-Carolina, and N. Longworth, of Cincinnati. These gentlemen have long been employed in its successful cultivation, and have produced fine wines from their vineyards, from native grapes, and are persuaded the culture may be successfully prosecuted. Mr. Longworth made nearly one hundred barrels from his vintage of 1837. A Mr. Riser, his neighbor, made twenty-five barrels from half an acre of vines, of superior quality. Mr. R.'s grapes were the Catawba, Isabella and Schuylkill Muscadel.

THE AMERICAN INSTITUTE,

Held its tenth annual fair at New-York in October. This association was formed to promote improvement in the useful arts of our country; and well has it realized the high and patriotic wishes of its founders. The tenth annual fair afforded splendid specimens of skill and industry in most of the manufacturing and useful arts, and demonstrated our ability to supply all our domestic wants, in those fabrics, from American labor. The exhibition continued open for more than two weeks, during which it is estimated that there were more than one hundred thousand entrances into Niblo's Garden, where the fair was held. The exhibitors amounted to two hundred more than in any former year, and it is said exceeded twelve hundred in number. Thirty gold medals, one hundred and thirty silver medals, and some hundreds of diplomas, were awarded as premiums for articles exhibited. The address, by the Rev. Mr. Dewey, proceedings and a list of the articles to which premiums were awarded, are published at length in the Journal of the Institute, a monthly periodical, conducted by T. B. Wakeman, Esq. a gentleman who has contributed largely to the usefulness and respectability of the Institute. From the list of agricultural articles, we extract the following:

Joseph Ross, Boundbrook, N. J. for the best clover threshing machine and corn sheller—*Silver medal.*

A. M. Wilson, Rhinebeck, for a mowing machine—the *Institute's certificate of first premium*, a gold medal having been awarded last year.

D. A. Webster, New-York, for a spring beater, threshing machine, equal to any one exhibited—*Silver medal.*

The same, for a spring beater hemp and flax dresser—*Silver medal.*

Syrus Yale, Utica, for a threshing machine, equal to any exhibited—*Silver medal.*

S. S. Allen, Saratoga, for a threshing machine, (a silver medal was awarded last year.)—*Diploma.*

Jonathan S. Eastman, Baltimore, Md. for an excellent cylinder straw cutter—*Silver medal.*

C. N. Bement, Albany, for the best turnip drill cultivator, and for fine sheep—*Silver medal.*

J. C. Concklin, Peekskill, for a double roller, an important article—*Diploma.*

The same, for a revolving press harrow, a valuable improvement—*Silver medal.* [See cut in another column.]

Bulkley & Denton, Milton, N. Y. for a machine for grinding apples—*Diploma.*

David Ruggles, Newburgh, N. Y. for a fine specimen of Brussa mulberry trees and leaves, a valuable article. Introduced into this country by Charles Rhind, Esq. 572 Broom-street, New-York.—*Silver medal.*

J. W. Anderson, Flatland Neck, L. I. for an improved manure fork—*Diploma.*

Samuel Root, Hallett's Cove, L. I. for a fine specimen of squashes—*Diploma.*

J. R. Finch, Paterson, N. J. for a specimen of mulberry trees, (Morus Multicalus.)—*Diploma.*

Struges M Judd, Danberry, Ct. for a specimen of bee-hives, a valuable improvement—*Diploma.*

William Brant, Elizabethtown, N. J. for a sausage meat cutter—*Diploma.*

Patrick Cortello, Harlaem, N. Y. for a fine specimen of squashes—*Diploma.*

Hamilton Wilson, Newark, N. J. for specimens of potatoes, first and second crop this season—*Diploma.*

Robert M. Vredenburgh, 2 Ann-street, New-York, for an excellent specimen of champaigne cider—*Diploma.*

Gideon Hotchkiss, Broome county, N. Y. for cart ox yoke, a valuable improvement—*Silver medal.*

Cornilius Bergen, Brooklyn, L. I. for the best specimen of ploughs, (self-sharpening.)—*Silver medal.*

Minor & Horton, Peekskill, N. Y. for the second best specimen of ploughs—*Diploma.*

Ellis & Borson, Boston, Mass. for a plough of superior workmanship—*Diploma.*

A. Van Bergen, Albany, N. Y. for a good cultivator. S. Dunn & Co. 193 Water-street, agents.—*Diploma.*

George A. Hoyt, Albany, N. Y. for the second best drill barrow. S. Dunn & Co. 193 Water-street, agents.—*Diploma.*

Samuel Slater, Philadelphia, Pa. for the second best corn sheller. S. Fleet, 79 Blarclay-street, agent.—*Diploma.*

J. Read, 88 Broadway, N. Y. for a good washing machine—*Diploma.*

D. Talcott, Skeneateles, N. Y. for the best horse power—*Diploma.*

D. K. Minor, 30 Wall-street, N. Y. for a specimen of American poudrette—*Diploma.*

Van Allen & Arnold, Salisbury, N. Y. for a corn sheller. S. Dunn & Co. 193 Water-street, agents.—*Diploma.*

Charles Henry Hall, Harlaem, N. Y. for a fine exhibition of short horned Durham cattle and sheep—*Gold medal.*

Leonard D. Cliff, Carmel, Putnam co. N. Y. for specimens of sheep of the Lincolnshire breed, considered very superior—*Silver medal.*

Rohan Potato.—Our friend J. A. Thompson, Esq. of Catskill, was the first to import this valuable variety of the potato, which he effected at considerable expense. He has raised a good crop; and with a view to obtain at least a partial renumeration, he offers seed for sale. Letters addressed to him, post paid, will be duly attended to.

Blight in the Pear Tree.—Considering every suggestion, which promises to be of use in preventing this evil to one of our best kinds of fruit, as worthy of notice, we state, on the authority of Saml. Myers, of Ohio, that *spreading tan around the roots of the tree*, has been found to be a preventive of blight, and that where the tree has been already affected, it has stopped the disease, and caused thrift and fruitfulness. The experiment may be easily tried.

OPINIONS OF WISE MEN.

It is stated by Plutarch, that when Periander gave an entertainment to the wise men of the day, the question—*Which is the most perfect popular government?*—being propounded, Solon answered, that where an injury done to any private citizen is such to the whole body: that, says Bias, where the law has no superior: that, says Thales, where the inhabitants are neither too rich nor too poor: that, says Anacharsis, where virtue is honored and vice detested: says Pittacre, where dignities are always conferred upon the virtuous, and never upon the wicked: says Cleobulus, where the citizens fear blame more than punishment: says Clio, where the laws are more regarded, and have more authority, than the orators.

Aristides, the Athenian, used to say, that the true citizen, or the honest man, ought to make no other use of his credit or power, than upon all occasions to practice what was honest and just, and engage others to do the same.

The science of agriculture, is nothing more than an endeavor to discover and cure nature's defects; and the grand outlines of it are—"*how to make heavy land lighter, and light land heavier; cold land hotter, and hot land colder.*" He that knows these secrets is a farmer, and he that does not know them is no farmer.—*Davis's Survey of Wiltshire.*

Every man that wears a British coat, pays the tithes, the poor rates, the rents, the taxes of England, with export duties and profits to foreign merchants; all of which is so much actual loss to the country.—*Chanc. Livingston.*

Influence of luxury.—The most judicious historians, the most learned philosophers, and profoundest politicians, all lay it down, as a certain indisputable maxim, that wherever luxury prevails, it never fails to destroy the most flourishing states and kingdoms; and the experience of all ages, and all nations, does but too clearly demonstrate this maxim.—*Rollin.*

THE POLICY OF A GREAT STATESMAN.

It was by the improvement of agriculture, says Sir John Sinclair, "that the most celebrated statesmen of modern times, justly called Frederick the Great, (more from his attention to internal improvement than to foreign conquests,) raised his dominions, notwithstanding the disadvantages of situation, soil and climate, to that height of prosperity and power, to which they attained during his reign. His practice was to lay out about £300,000 sterling, (equal to $1,300,000,) *per annum*, in the encouragement of agricultural improvements, which he considered 'as manure spread upon the ground,' to secure an abundant harvest; and in fact, instead of being impoverished by such liberal grants, he thereby increased his revenues so much, that he was enabled to leave a treasury behind him, amounting to above £12,000,000 sterling," ($57,000,000.)

Opinion of the celebrated Watson, Bishop of Llandaff.—If we have quoted the following before, our apology for doing it now, is, that the sentiment is so just, and withal so important, that it will well bear repeating.

"The agricultural improvements which have hitherto taken place among us," says the Bishop, "have been by the expenditure of private wealth; but the country cannot be brought *to that perfection of cultivation*, of which it is capable, unless individual efforts are aided and accellerated by *public wisdom and munificence.* I boast not of any particular patriotism, but I would willingly pay my share of twenty or thirty millions of public money, to be appropriated by the legislature, to the agricultural improvement of Great Britain and Ireland. This appears to me to be an object of far nearer concern to our independence as a nation, than any extension of commerce, or any acquisition of distant territory, ever can be."

The territory possessed by any people, is the original property, or capital stock, from which they are supplied, not only with the necessaries, but with the comforts of life; and in direct proportion as their territory is improved, their prosperity will be advanced.

Where agriculture is neglected, population must be scanty, because the necessaries of life are wanting; and the great body of the people must be miserable, because regular employment cannot be furnished to them. Perhaps at no period has the land been more perfectly cultivated in Great Britain, than at the present; hence the lower ranks are better paid, better fed, better clothed, and in every respect more comfortably situated, than in former times. By the extension of agricultural improvement, by the meliorations made on the capital stock of the country, the numbers of the people have increased, manufactures have prospered, and both inland and foreign commerce have been carried on with vigor and success.—*Brewster.*

HINTS ON DIET AND DOMESTIC ECONOMY.

In boiling potatoes—the tubers should be sized, and put into cold water, hardly enough to cover them, that they may heat and cook through equally. If put into hot water, the outside is done, breaks and wastes before the inside is cooked. It is better to boil than to steam them.

Barley mush—one pound of barley will give the consistence of pudding, says Cooper, to one gallon of water; but it requires to be boiled five hours to bring it to this consistence.

Bread—Bake your own bread; one pound of flour will furnish rather more than 1⅓ lbs. of bread.—*Cooper*

Fleas and lice on poultry are destroyed by a decoction of sassafras wood.—*T. C.*

Meat can be preserved fresh in hot weather—1. By covering it with fresh charcoal powder in a cool cellar. 2. By covering it with molasses. 3. By keeping it in a vessel where carbonic acid gas has excluded the common air. 4. By folding it in a cloth dipped in vinegar wherein pepper has been infused. 5. By wiping it dry, and enveloping it in melted suet.—*T. C.* Sausages, secured by the last mode, may be kept till summer.

If your flour be not good, add about an ounce of common carbonate of magnesia to ten pounds of your flour. This takes away the sourness, makes it rise better, and makes it more wholesome. Half an ounce of pearl ash would have the same effect, but it hurts the color of the flour.—*T. C.*

Those whose solids are relaxed and weak, should avoid all tough and viscid food, though it ought to be substantial; and they should take frequent exercise in the open air. Hence their food should be stewed, rather than boiled or roasted. *The plethoric*, or those who abound with blood, should eat sparingly of whatever is in a high degree nourishing, as fat meat, rich wines, strong ale, &c. Their aliment should consist principally of bread, or other vegetables, and their drink of water, whey or small beer. *Persons of a thin habit* ought to follow a course directly opposite to that before suggested. Those who are troubled with acidity (gouty, hysterical and hypocondriacal persons) should live chiefly on solid meat; should avoid all flatulent food, as also all salted or smoke-dried provisions, and whatever is difficult of digestion, or apt to turn sour and rancid on the stomach. *Those of a sedentary life* ought to be more sparing as to *quantity*, and more attentive as to the *quality* of their aliment, than those who take much exercise; and ought to avoid the use of every thing which is sour, flatulent, rancid, and oppressive to the digestive organs.—*Willich.* Such as toast and butter, new or sour bread, baked fat meats, pie-crust, cheese, &c.—*T. C*

The aliment in early life, ought to be light, nourishing, and taken frequently, but in moderation. That of adults should be solid, and sufficiently tenacious: the diet proper for those advanced in life, should resemble that of infancy.

With respect to the quantity of food, there is one general rule, which ought never to be disregarded; namely, to cease eating when the first cravings of appetite are satisfied, so as to renovate the waste which the body has apparently sustained. By a strict adherence to this principle, many of those distressing complaints, arising from intemperance, might be effectually obviated.—*Willich.* Not less than six hours should intervene between meals; seven hours interval is not too long, but this should not be exceeded.—*T. C.*

Indigestion (dyspepsia) is produced by too much food; by too stimulating food; by stimulating drinks; by unwholesome food, hot bread, &c. by want of exercise; by grief; by the use of tobacco, or other narcotics. Cure: abstain from the causes. Take moderate purges; use little wine or spirits; eat no supper; use exercise.—*T. Cooper.*

To preserve apples—Wipe them dry, and keep them in a dry cellar of uniform temperature, on shelves, in the dark. Or keep them in earthen jars, with cuttings of paper from the book-binders intermixed. Grapes, in particular, may be thus kept.—*T. C.*

SALTING MEATS.

Salted meats lose much of their nutricious properties, and are rendered more indigestible withall, by giving them too much salt in the curing process. Salt, in excess, destroys the gelatinous particles, and renders the flesh tough and hard. The use of salt is to preserve meat, and of course no more should be applied to beef, mutton, and the lean of pork, as hams, than will barely answer the desired end. Salt petre is a powerful antiseptic, and sugar and molasses are also so, and they contribute to keep the meat tender and juicy; and where they are used in combination with salt, they lessen the quantity required of the latter. There is therefore economy, as well as pleasantness, in combining them. We have for many years followed this suggestion, and kept our meats tender, sweet and nutricious. The materials may all be combined in the

Knickerbacker pickle—which is made by dissolving, by boiling, 6 lbs. of salt and 3 oz. salt petre in each gallon of water required to cover the meat, when it is close packed in the meat tub, to which a quart of molasses may be beneficially added. Skim the liquid, when boiling, and turn it on the meat when it is cold—and put a weight on the meat, if necessary, to keep it covered with the liquid. We have sometimes combined the salt and salt petre, both pulverized, with the molasses, and applied them without water, by rubbing each piece of meat well with the mixture, and packing it close. There should be a spiggot near the bottom of the tub, in order that the liquids which settle may occasionally be drawn off and thrown upon the top. Meats prepared thus keep well till spring, when they require a pickle, and are of much richer flavor than those cured in a pickle. The pickle we have named serves alike for our hams and beef, and makes them neither too salt, nor leaves them too fresh, to suit the palate when cooked. No bloody meat should be put into the cask till it is perfectly cleaned.

TIDE MILLS.

A correspondent, who dates Talbott county, Md. asks for information on this subject, viz:

A description of the location, the rise or fall of tide, the quantity or number of acres enclosed, or space occupied by the pond or creek, the strength of current, kind and expense of improvements, profits of establishment, &c. &c.—in fine, a full description in relation of this kind of mill.

As the information asked for is not within our reach, we shall be very much obliged to any gentleman competent to give it, to furnish it for the Cultivator.

INCOMBUSTIBLE WASH, AND STUCCO WHITE WASH.

The two following recipes are valuable, if they will answer the purposes described, of which there seems to us to exist a strong probability:

"The basis of both is lime, which must be first slaked with hot water, in a little tub or piggin; and covered to keep in the steam; it then should be past in a fluid form, through a fine sieve, to obtain the flour of the lime. It must be put on with a painter's brush—two coats are for the outside work.

"*First.*—To make a fluid for the roof and other parts of wooden buildings, to render them incombustible, and coating for brick, tile, and stone work, and rough cast, to render impervious to the water, and give them a durable and nice appearance. The proportions in each receipt are five gallons. Slack your lime as before directed, say six quarts, into which put one quart of clean rock salt, for each gallon of water, to be entirely dissolved by boiling, and skimmed clean, then add to the five gallons one pound of allum, one-half pound of coperas, three-fourths of a pound of potash—the last to be gradually added: four quarts of fine sand, or hard wood ashes, must also be added, and coloring matter may be added in such a quantity as to give it the requisite shade. It will look better than paint, and be as lasting as slate. It must be put on hot. Old shingles must be first cleaned with a stiff broom, when this may be applied. It will stop the small leaks, prevent moss from growing, render them incombustible, and last many years.

"*Second.*—To make a brilliant Stucco White Wash, for buildings, inside and out. Take clean lumps of well burnt lime: slack the same as before, add one-fourth of a pound of whiting or burnt allum pulverised, one pound of loaf or other sugar, three points of rice flour, made into a very thin and well boiled paste, starch or jelly, and one pound clean glue, dissolved in the manner cabinet makers do. This may be applied cold within doors, and warm outside. It will be more brilliant than plaster of paris, and will retain its brilliancy for many years, say 50 or a 100. It is superior: nothing equal. The east end of the president's house at Washington is washed with it."

The anniversary address will be delivered before the New-York State Agricultural Society, on the first Thursday in February, by the president, Dr. J. P. Beekman.

We acknowledge the receipt of seeds of native plants from S. M. Stevenson, or rather from Mrs. Stevenson, of North Lake, Mich. for which the lady well please accept our thanks. Among them are seeds of three species of the wild pea, similar to the vetch of Britain. These may become an acquisition to our agriculture, to be cut as green food; and as they are indigenous, must be better suited to our climate than varieties from Europe.

☞ The Conductor's brand has been used, without his knowledge, upon barrels of Italian Spring Wheat, sent to the south. Although we have full confidence in the honest intentions and integrity of those who have thus used our name, it is proper to say, that we have had no interest, and do not assume any responsibility, in the transactions in this article.

CORRESPONDENCE.

RUTA BAGA.

The culture of roots, and more particularly the Ruta Baga, for stock, appears to be gaining ground yearly, and their value better understood.

The prejudice against *book-farming*, is giving away, and the advantages of agricultural papers are better appreciated. The directions laid down for the culture and management of the Ruta Baga, in the 4th No. 1st vol. page 51, of the Cultivator, has induced many farmers to try the "*experiment*" by putting in a fourth of an acre, and some have mustered courage enough to put in from one to two acres.

When the directions have been followed closely, success has generally attended them. A partial failure of the first crop should not deter them from a second attempt.

The first crop I undertook to cultivate (1834) was a failure, for on two acres I only gathered 315 bushels.

Having then but little experience in farming, and not sufficient confidence in my own abilities, to undertake their culture, I employed an Englishman, who said he understood the process of sowing the seed, and after culture. He pretended there was great art in putting in the seeds, and from his movements I began to suspect there was, for it took him over two days to sow the seed.

When weeding and thinning time arrived, I employed him again, which took him fourteen days. He was employed at the after dressing, and harvesting. The produce was as above stated. This, I thought, rather an expensive crop; however this failure did not discourage, but rather stimulated me to greater exertions.

The following season I was determined to try and see what I could do, having profited by the experience of the former year. I sold my English Drill and had one made, of my own construction, of which my present Drill is an improvement. The ground was in the same field, and adjoining where I had them the previous year—it was well manured and prepared, and on the 22d of June, I drilled in the seed, which occupied three hours.

When in the third leaf they were carefully weeded and thinned out, and the plants left from eight to twelve inches in the rows. The rows three feet asunder The cultivator was run through them at intervals several times, and dressed with the hoe twice after. From this piece I took off over 1600 bushels—many of them weighing 20 lbs. and one weighing, with the tops on 26½ lbs. and without the tops 24¼ lbs. I mention this as an offset to a communication in the 48th No. of the Genesee Farmer, over the signature of "Fred. Suter," of Ancaster, Upper Canada. His wonderful turnep weighed 19¾ lbs.

The same season I had seven acres in Ruta Baga's, on the farm I now occupy, which averaged 500 bushels to the acre. They were not as large, but of superior quality. Since then I have had no difficulty in managing the crop, although I have never been enabled to grow them so large, nor do I deem great size of much advantage.

The Ruta Baga delights in a sandy or gravelly soil. In a stiff clay or wet soil, they will not flourish. Of the truth of this, I had ample proof the past season. A part of the field I cultivated, was rather tenacious, and stiff, although it received the same quantity of manure as the other part, which was a loam—the roots on the clay soil wore very small and the plants had a sickly appearance during the season. From a little over 2¾ acres I took 1,400 bushels.

On a part of the field I tried, as an experiment, bone dust, sown broad cast, and harrowed in at the time of drilling in the seed, at the rate of 25 bushels to the acre. The result proved favorable. I also tried ashes, but without success. The plants were sickly and the roots very small.

I urged some of my neighbors to try the cultivation of the Ruta Baga, and as an inducement, offered to loan them my drill, to sow the seed. For information of their culture, I referred them to the Cultivator. None were more successful than my neighbors, the Messrs. Bullocks. On a little over four acres they took off more than 4,000 bushels, and when pitted the mounds were as thick as hay-cocks in some meadows.

A correspondent, in New-Jersey, writes me that having sold his farm, his Ruta Baga patch, consisting of two acres, was sold the 5th of Oct. last at auction, for $176! Allowing nine cents per bushel, which is low for them, there must have been nearly 2000 bushels. This would afford him a good profit, for they can be grown at an expense of four cents per bushel.

I feed them to my cattle, sheep, horses and swine, who become remarkably fond of them. For young cattle and sheep I consider them invaluable.

At Hosick, on the farm of H. D. Grove, esq. I saw several patches of good size, and promised an abundant crop. Mr. G. thinks them of great value for his sheep.

In a short tour to the north and east last fall, of some thirty miles, I was much gratified to observe a commencement of their culture, however limited. No class of men are more cautious, or more suspicious of innovations or new improvements in their art, or profession, than the regular bred farmers. And it is proper that it is so. One great cause of the failure of the crops, with new beginners, is, they are not particular to thin them out sufficiently; the consequence is, they run up to tops, and the bottoms, if any, are small. Another cause is, the soil is not properly prepared. In many cases, it will require, after having been well ploughed, to be stirred with the Cultivator, rolled and harrowed until it becomes well pulverized and mellow—the harrow should be used just before the seed is drilled in. By this means I find the after culture much diminished.

CALEB N. BEMENT.

Three Hills Farm, Dec. 1837.

PROFITS OF FARMING.

Ithaca, December 10, 1837.

J. Buel, Esq.—Dear Sir,—In August, 1836, B. Wood, Esq. and myself purchased a farm of 100 acres, seventy acres of which was under improvement, in the town of Dryden, at what was considered a large price for a worn out farm, as that was called. The farm was managed by Mr. Wood for our joint benefit. An accurate account was kept of all expenses, as one-half was to be charged to me. The season is now over and we have just balanced our accounts, that we might know how we stood in our farming speculation; and as the result is satisfactory, I communicate it to you as another evidence, that capital may be profitably invested in agricultural pursuits. The account is as follows:

DRYDEN FARM.

		Dr.	Cr.
1837.	To expenses of ditching, repairing buildings, &c.	$59 76	
	To expenses of repairing fences, cultivating farm, furnishing seed, securing crops, preparing crops for market, conveying them to market, &c.	373 74	
	By one pasture lot rented out, at $18,		18 00
Oct. 2.	By 148 bushels of potatoes, at 2s.		37 00
" 26.	" 114 " buckwheat, at 3s.6d.		49 87
Nov. 3.	" 100 " wheat, 12s.		150 00
" 24.	" 450 " oats, 3s		168 75
" 24.	" 50 " corn, 6s.		37 50
" 24.	" 50 " ruta baga turnips, 1s.6d.		9 37
Dec. 1.	" 30 " tons of hay, 40s.		150 00
	" growth on young stock, horses and cattle,		65 00
	" amount received from other small items,		14 89
	To one years interest on $2,500, or cost of farm,	175 00	
	To balance to new account,	91 88	
		$700 38	700 38

Dec. 10. By balance from old account of profits of the farm, 91 88

So you see that we have been able to pay all expenses of the farm, $59.76 for useful improvements, seven per cent interest on the capital invested, and have a balance on hand of $91.88, or in other words, our investment has yielded 10½ per cent interest, and our farm is left in a condition to do at least three per cent better next season than it has this, if the season is equally favorable. If you think any benefit will result from publishing the account of our small experience in farming in your valuable paper, you are at liberty to do so.

The Dutton corn answers my utmost expectation. I had a piece that yielded me at the rate of eighty bushels per acre, of as sound corn as I ever saw, and was ripe by the middle of August. I am keeping 100 bushels for seed. And the Berkshire pigs that I received from C. N. Bement, Esq. are admired by all who see them; they are certainly the finest animals of the hog species that I ever saw.

Very respectfully, your obedient servent,

E. CORNELL.

P. S. The above is a practical illustration of the benefits that result from keeping farm accounts. E. C.

STEAMERS—ROTARY STEAM ENGINES—MANURES.

Buffalo, Nov. 22, 1837.

My Dear Sir—In the Sept. No. of the present vol. of the Cultivator, there is an admirable plan for a *cheap* steaming apparatus, which it would be for the advantage of every one keeping 8 or 10 hogs. to use for steaming all the food to be given them. But I should like to see something more perfect than has yet come under my observation, which shall, without too much expense, and without liability to get out of repair, cook a larger quantity of food in the shortest time, and with the smallest quantity of fuel It appears to me, my dear sir, that this is now the *great* desideratum for every one who has much stock ot feed. Every person is convinced of the great advantage of grinding their grain before feeding it, yet after it is ground, without subsequent cooking, it will yield only a part of its nutriment. Now *steaming*, if it can be done effectually, will not only answer the purpose of both grinding and subsequent cooking, but add, also, materially to the quantity of food which can be used, besides effecting a larger saving of labor. I will illustrate this by an example. With a boiler of sufficient power to generate steam to 400° or 600° of Fahrenheit; a furnace so constructed as to apply fuel in such a way as to produce this heat, and a vat sufficiently capacious to hold a large quantity of food, *and hold the steam at the above temperature*, corn can be cooked *on the cob, and in the husk, in a few minutes*, by which all the labor of husking, shelling, sending to mill, and loss of toll, will be saved, while the husk and cob is added to the mass of food, and contributes materially to its value by making it lighter and less cloying to cattle. The stalks can then be steamed whole if required, or which would be preferable, after being cut into pieces suitable for feeding. I have seen no account of any such experiment; but it is my opinion that *one* acre so used, would be worth more than *two*, perhaps *three*, fed in the ordinary way. In the same manner oats, barley, buckwheat or any other kinds of grain, may be steamed so as to extract every particle of their nutritive qualities, and without any expense of threshing, milling, &c . The saving in all vegetables fed to swine would be proportionable great, and their nutrition would be much increased for feeding cattle. If hay also can be cooked to advantage, and I doubt not it can, the value of such an apparatus would be vastly enhanced. When we consider the importance of this subject, it is a matter of surprise that no premium has yet been offered for a perfect apparatus, by any of our societies, agricultural or mechanical, numerous and enlightened as they are throughout the country; but in the absence of any such premium, there is sufficient inducement in the profit in manufacturing and selling such as could be warranted durable, effective and capacious, and at not too great a price, to justify any ingenious and enterprizing mechanic to perfect one.

The *boiler* shewn in the Cultivator, vol. 2, No. 7, seems to me perfect enough. The material for it, as well as the cocks, should be strong and durable, and the size proportioned to the use required.

The furnace should be so constructed, especially when wood is used for fuel, that in addition to exposing all the bottom of the boiler to the fire, the *flue should pass once entirely around it* in an ascending direction, so as to expend all the heat on the boiler; and this may be done with brick, or I think more effectually, by a flue to fit the boiler made of thick boiler iron. This would allow the smoke and flame to pass off readily and without incurring any risk from the carelessness or botching of masons.

The only thing that remains then, is to deliver the steam into a vessel suitable for holding the food to be cooked. And *here* it is especially, that we want the aid of science and experience. A reservoir of copper or iron would undoubtedly answer the purpose; but if we are going to cook on a large scale, stalks, hay, &c. we require *a great deal of room*, and besides the exposure to corrosion in using metals, it would be too expensive. If we wanted only a temperature of boiling water, or 212° Fahrenheit, most kinds of wood would sustain this heat and pressure; but to accomplish our purpose effectually and speedily, we require a temperature twice or three times as high. Can oak, or pine, or cedar sustain it? Here we must have *absolute certainty*; we must know what kinds of plank are suitable, and what thickness—how secured, by iron clamps or otherwise, and how much this strength is to be increased for every increase in size. The form should, I think, be an oblong box, and for a moderate size the one before referred to is of a proper kind; if enlarged considerably, it should be made longer and larger, and open at both ends. We want the exact proportions. Is it necessary to carry off the condensed steam, and if so, in what manner? The foregoing seem to be the essential features to be established relative to this subject, and are they not worthy to be solved in the most scientific and satisfactory manner? Who that has 15 or 20 head of any kind of stock to feed, would hesitate to give 50, 100 or even $200, for a cooking apparatus, that with a little addition of time and fuel will save him half his food, or with the same quantity will enable him to keep twice the number of cattle? Let such an one be made, and my word for it, the inventor will have as much call for it, as Dr. Nott had for his celebrated stoves. I conceive such an improvement to be of far greater value than all the inventions of ploughs, harrows, horse rakes, mowing and threshing machines, *et id genus omne*, that have been constructed, and patented, and exhibited, and talked about, and cost so much money within the last ten years.

Here I will just allude to two other important appendages to a large farming establishment. The first is a small simple rotary steam engine, to be propelled by connecting it with the boiler heretofore described. Let this occupy a central position, between the barn, the pump, the wood-house and milk room, and by connecting bolts or shafts, it hardly matters how long, it can, for a trifling expense, be made to thresh all the grain, cut all the fodder, pump the water, cut the wood, turn the grindstone, churn the milk, press the cheese, and do any other work within its reach. Engines every way adapted to this purpose, ought to be kept for sale with other farming utensils, where they can always be had at a moderate price.

The other and only subject I will mention is a *stercorary*, and as every man who reflects on the subject at all cannot fail to be convinced of their great utility, I shall confine myself to a few queries.

1st. Can there be a more suitable place for it than an excavation under the stable, which shall receive the manure from above through a trap door?

2d. Is a stone wall laid in mortar sufficient to retain all the moisture and salts that are liable to escape laterally?

3d. Is a *stiff clay* bottom and sides sufficient for the same object?

4th. What would be the effect on the timbers and plank, not coming in contact with the manure, but exposed to the effluvia, and what kind of timher will best resist this deleterious influence?

5th. Should there be any ventilation to it, and how much?

A full answer to all or any of the above suggestions, will confer a general benefit on the community, and particularly oblige,

Yours, very truly,

Judge Buel. R. L. ALLEN.

REMARKS.

There are some points in the above which seem to demand *our* attention; but our remarks must be brief. And first, we are inclined to believe, with Mr. Allen, that thorough steaming, will supercede the grinding of grain for farm stock—it will burst the globules which contain the dextrine—to profit by a recent discovery—the nutritive matter of the grain. 2d. We do not like the flue around the boiler—the whole boiler, except the upper rim, about the flange, should be exposed to the flame. The brick work may be conformed to the shape of the boiler, leaving an interval of four or five inches between them; the bottom of the wood grate may be two to four inches above the bottom of the kettle with an ash pit below—the flame then comes in contact with the exterior of the boiler, and produces a much stronger effect than when confined to a flue. 3. In regard to the rotary steam engine—we believe it can and will be made subservient to all the stationary purposes of the farm, where water, wind or horse power are not preferred. The same power, we have little doubt, will soon be employed to propel all the stationary machinery of the farm. 4. As to manures, we would have no stercorary. We would prefer, to it, under the stables, a cistern, for the *liquid* manure only. We hold that all winter made manure should be applied in spring, to hoed crops, before fermentation has progressed far. That coming from the stables may be benefitted by being kept under cover, though we think it equally serviceable to have it spread in the cattle yard, that it may be mixed with its litter, and subjected to the tread of the cattle. It will then neither become fire-fanged, nor undergo excessive fermentation, before it can be employed for the hoed crop. But if stercoraries are used, under beams, stone walls, in a clay soil, and a stiff clay bottom, will, after a little time, become sufficiently retentive to prevent the loss of liquids; but ample ventilation is required to prevent the rapid decay of the timber and plank of the floor. Give no air, says our friend Tomlinson, or give a free circulation, if you would preserve wood in floors.

HEDGING.

Poolesville, Montgomery co. Md. November 20th, 1837.

Mr. Editor,—Dear Sir,—Having noticed several articles in the Cultivator on the subject of hedging, none of which I think are well calculated to assist and encourage those who wish to commence the business. Having had some experience myself in thorn hedging, I will endeavor to give you the process from first to last, for the benefit of all who wish to try it. I obtained the information from an Englishman about twenty-five years ago, who had devoted his attention to hedging in this country. The sprouting process I purchased as a secret, which I agreed not to divulge so long as he lived in the settlement; he is long since dead, so I am released, and cheerfully give the information. The berries should be gathered when ripe, and spread on a loft, where they may remain until about the first of February, when they must be soaked until the pulp becomes soft, which will only require a few days in a cellar; then they must be carefully mashed, so as not to break the seeds, and the pulp washed off by rubbing the seed in a vessel of water, and pouring off the pulp until the seeds are perfectly clean; in this moist state the seed must be kept in a tight vessel, in a cool and damp place, covered with a wet cloth, and turned up-side down, or out of one vessel into another, about once a week, or as often as necessary, to prevent them from becoming too dry on top. As early in March as in the season will admit a seed bed must be prepared, which I would advise to be new land, inclining to be a little moist. If the ground be burnt first so much the better. About this time you will find the seeds begin to burst; as soon as they generally begin to open and some to sprout, sow them broad cast, pretty thick, and cover them about one inch deep, by taking the surface earth with a spade, or shovel, out of trenches, wide enough for a man to stand in, at the distance of four feet apart, through your bed; which trenches serve to stand in to pick the weeds from the young plants, which must be particularly attended to, as the plants at first are very tender, and would be lost by letting the weeds overrun them at first. If the weather is favorable, and the seed in a proper state, they will be up in a week, and will grow the first season from twelve to eighteen inches high, the largest will do to plant in hedge the next spring, and the balance the spring following. I would here remark, that I have only used the Maryland or Virginia white or hawthorn, which are five-seeded small red berries, but I have no doubt that the same process would have the same effect with the other varieties.

The next thing to be considered is the planting. The line on which to plant the hedge should be cultivated the season previous to planting, to prepare it for the reception of the quicks the following spring. As early in spring as the land will admit, stir the line with the plough and harrow, then draw a deep and straight furrow with two horses, in which to set quicks, having the quicks prepared for planting, which is done by choping the tops off three or four inches above the root, also the long ends of the roots; they may be set against one side of the furrow, eight inches apart, which I find by experience close enough, and the furrow filled with the surface earth, and pressed to the roots with the feet, having one on each side, in this way a great deal may be done in a short time. The young hedge should be kept clean with the plough and hoe for several years, and must also be protected from stock, until it gets above their reach, especially early in spring, as cattle are very fond of browsing the young thorns. In six or eight years in good land with good nursing they may be plashed, which completes the fence. This operation is performed by commencing at the south or west end of the line, according to the direction it may run, and laying them down on the north or east side. Have stakes prepared, one end pointed, about four and a half feet long, they are to be driven in a line about one foot from the line of the hedge, from thirteen to twenty four inches apart, as the work progresses. First trim off the brush which will be in your way, then cut the stalks about two-thirds off, near the ground, or until they will bend down, beginning a little above ground, and choping downwards, then cut the stumps smooth upwards. The stakes are driven firm as the work goes on, and the thorns laid one over another between the stakes; this will leave the stumps on the sun side, and clear of the brush, and will raise as high as the stakes when the hedge is laid down to complete it; it will be necessary to wattle two small poles, split will do, along the top of the stakes, to keep all in place; these stakes and wattling will last until the hedge has grown strong enough to require no further support. When the hedge is laid down as above, it will turn any kind of stock except hogs, and it will be very difficult to make any hedge a complete barrier against these animals, as they will push through without regard to the spines. The young growth, which will put up from the stumps and stalks, must be cut every year, and not suffered to grow higher than you wish your fence. The thorn is very tenacious of life, and the beginner need not apprehend any danger of their dying from cutting them as above directed. Plashing should commence as soon in spring as the frost will allow the stakes to be driven. A man will plash from eight to ten rods per day. The hedger must be provided with leather mittens, and an instrument for cutting, something like the following.* This should be about five inches long in the blade, from three to four inches broad, of good substance in the middle, and brought to an edge on both sides. The hook also must have a continued edge, like a hook bill knife; the fork in the end is useful in placing the thorns; the shank is for the handle. Thus I have given you practice in hedging as well as I am capable; you may dispose of it as you think proper.

Now, sir, I think the Cultivator a very valuable periodical, well calculated to improve American husbandry, which certainly is in a wretched state, shewing almost every defect and also the remedies. But how can I avail myself of all those advantage, and others in my situation, being possessed of a worn out gravelly and watery farm, which will yield no surplus for experiments or improvements? But still remain a constant reader and well wisher of the Cultivator.

JOHN A. CHISWELL.

BAKEWELL SHEEP.

Albany, Nov. 23, 1837.

J. Buel—Dear Sir—In perusing your valuable paper, a communication from Mr. Cliffstruck my attention, wishing you to contrast the difference between his Lincoln and Leicester sheep. I do not feel satisfied in letting the latter be so much degenerated without comment. Having had much experience in cultivating that breed in England, and from that I feel assured there must be some mismanagement, imprudent selection of rams, or his original ewes inferior, to allow Bakewell's improvement in fleece to be lowered to 3 lb. 12 oz.

Before you make your distinction, allow me to refer you to the flock of Thomas Dunn, Esq. of this city; though not thorough bred Leicesters, differ but little; one cross from the Cotswold has given them a little more wool and constitution; a judicious selection of rams has yearly improved his fleece and carcase, and should the next three years' improvement be equal to the past three, I have a favorable opinion that his flock will be equal to any in England; and I have no scruple in saying, they are now superior to any other flock in this country. I have viewed his last spring lambs with gratification, and think they will bear the inspection of the most experienced judges, who, I have no doubt, would grant, that much merit is due to him for his exertion to improve. He has given me a statement of fleeces of his yearling rams, which are as follows:

2	yearlings,	22 lbs.
4	do.	42 lbs.
4	do.	36½ lbs.
10		100½ lbs.

averaging 10 lbs. each. When he has weighed his whole cut of wool, I will endeavor to send you the average.

I feel inclined to believe that Leicesters are valuable, but may be improved with a cross with the Cotswold, and if reduced to a small size and light fleece, a cross with the Lincoln would much improve them.

The admiration T. D.'s six weathers excited in the Albany market, on the 22d of February last, added much to the credit of his flock: their quality of mutton, smallness of bone, with a heavy carcase, were considered very superior by all who saw them.

Six more of his weathers were sold to Mr. Fitzgiles of New-York, in March, for twenty-eight dollars each, which is positive proof that Leicesters are valuable.

I am, dear sir, yours most truly,

WM. HENRY SOTHAM.

P. S. Since writing the above, I have had a communication from Mr. John Wilkinson, of Duanesburgh, stating that his flock of Leicesters cut a little over 6 lbs. on an average.

[Mr. Solon Robinson will please accept our grateful acknowledgments, for the box and contents described below, which have come safely to hand. Mr. Robinson is located in the north part of Indiana, near Lake Michigan. The liberal example of Gen. Cock, and of Mr. Robinson, in endeavoring to disseminate the good fruits of the earth, and thereby to multiply the comforts of the human family, is deserving of high commendation, and of general imitation.]

---

* The cut was forgotten till too late, but will be given in our next.

Lake C. H. Ia. Sept. 22, 1837.

J. Buel, Esq.—This box contains a specimen of cultivated soil, of Robinson's Prairie, Lake county, Ia. and a specimen of the subsoil, two feet below the surface, and a specimen of the under stratum, ten feet below the surface, below which is a bed of beach sand, in which water is found at various depths.

Also, a few Nutmeg and Mackinaw blue potatoes—both very early, the Nutmeg particularly so.

Also, a specimen of "Lake Superior Indian Corn," grown between the 20th of May and 20th of August, 1837, in a cold piece of ground, without manure, in Lake county, Ia. (latitude 41½.) This corn is principally useful for early garden culture, growing small and low, as may be seen by one of the stalks which is herewith sent, and which shows a fair sample of size.

Also, a specimen of black corn—known here as "Squaw Corn"—requires a very short season and produces well.

Also, the product of a single seed of timothy, sent to forcibly illustrate the remarkable increase of agricultural products. I hope this seed may be sown by some one who will notice the increase for two or three succeeding years.

Also, a few nuts and small branches and leaves of the northern or upland bur oak. The rich taste will best demonstrate their nature as nutriment for hogs.

And finally, a few native crab apples—just to show that although in a new country, we are not entirely destitute of apples. This kind are abundant. Also, a very delicious plum—purple and white. A few stones of the latter are herewith sent. They grow wild, about an inch in diameter.

I beg another year's grace on "Prairie flower seed." Accept the useful first.

I am, as a friend of agriculture, most respectfully your friend,
SOLON ROBINSON.

REMARKS.

In the *Nutmeg* we recognize our *early kidney*, and in the *Mackinaw blue* our *Sault St. Maria* potatoes. The first is our best early variety, and we will hereafter call it the *Nutmeg*. In our November number, we have classed the Sault St. Maria among our most esteemed varieties. Both varieties are new among us.

The stalk of the Lake Superior corn is about three and a half feet long, and the ears six inches. Its early maturity may render it valuable in the higher and colder districts of our state. The ear of the squaw corn is about ten inches long, and may also be valuable for its precocity.

The seed of the head of timothy half filled a wine glass. It is a beautiful specimen. We have sown it.

The nuts and leaves of the oak strikingly resemble those figured and described by Michaux, as the *over-cup oak*, (Quercus lyrata,) known in the southern states, where it most abounds, under the different names of swamp post oak, over-cup oak, and water white oak. The tree grows there to the size of the largest forest timber. There is no other acorn which bears a resemblance to this. The nuts sent us are almost as sweet as a chestnut, with a slight astringency, and the edge of the case is beautifully fringed. The bur oak of Michaux is synonymous with over-cup *white* oak, (Quercus macrocarpa;) the nuts are shorter than those sent us, and are almost wholly enveloped by the shell, which latter is wholly free from fringe or moss. We have planted most of the acorns sent us, together with the plum stones. This is either the over-cup oak of Michaux, or a species allied to it, which escaped the research of that naturalist.

☞ The seeds not planted, as well as the remains of the barrel of early May wheat from Gen. Cock, will be distributed at the anniversary meeting of the State Agricultural Society, in February.

MACHINE FOR UNLOADING HAY.

Lee, November 27th, 1837.

Dear Sir,—Knowing that your valuable publication is a repository for the various improvements in agriculture and husbandry, we take the liberty to send you the following communication, which we trust will be important to the farmers of our country.

Having used "*the machine for unloading hay*," lately invented by *Mr. Luther Miller*, a farmer of this town, permit us to give a brief description of its structure, and the mode of its operation.

This machine is worked by horse power, and consists of a rake, the head of which is from three to five feet in length; the length of the head, and the number of the teeth, suited to the convenience of the user. The teeth are of iron or steel, about eighteen inches in length, with a curve of about three inches, and set one foot apart. A handle three feet in length, is framed into the head of the rake; and to this handle a rope is attached, which, after passing a pulley fixed directly over the place for depositing the hay, passes downward under another pulley, usually called a snatch block, fastened about two feet from the surface upon which the horse stands for working the machine. This rope, after passing under the pulley, is fixed to the horse. Another small rope is fastened to the centre of the head of the rake, by which the machine is guided.

The rake is loaded by thrusting the teeth into the hay, as it lies on the wagon. The horse is then started forward, and the rake with its load ascends; and when it reaches due elevation, the horse is stayed, and the rake disengaged from its load, by drawing upon the rope fixed to the centre of the head of the rake. The horse is then backed to the place of starting, the rake loaded, the horse driven forward, the rake elevated and disengaged from its load as before. One man, with a tractable horse, can manage the whole machine. The hay can be thrown into any part of the mow at pleasure, by fixing the upper pulley directly over the place for unloading.

This machine is of the greatest aid where the hay has been collected with the horse rake. In such a case it is very difficult to unload the hay by pitching in the ordinary way, but by this machine it is done with the greatest ease. This machine can be more extensively useful than the horse rake for collecting hay. The usefulness of the latter is confined to level ground, while the former may be used in every region.

In the course of the past summer, we have unloaded with this machine *half a ton in eighty seconds, or at the rate of a ton in a little less than three minutes.* This was done with a rake of the smallest size, viz. *three feet* in length, and with but *three teeth.* With a larger rake it might have been done in a shorter time. This machine, simple in its structure, and costing not over five dollars, will be found to be a *most valuable labor-saving apparatus;* and we trust highly and extensively useful to the farmer. And we rejoice, that while the manufacturer, and persons in almost every department of human enterprise, are assisted infinitely by machinery, some portion of human invention and skill is turned to aiding the *husbandman*, in his *ancient*, *honorable*, and *most important* employment.

Yours most respectfully,
LORIN BUSHNELL.
ASA BUSHNELL.

ROOT STEAMER.

Durham, Nov. 27, 1837

J. Buel, Esq.—The plan of the steaming apparatus described in the September number of the Cultivator, appeared to me so well adapted to the purpose intended, that I resolved to erect one for the purpose of steaming vegetables for the pigs which I fatten for my own consumption, but as I did not find a suitable kettle for the purpose, I hit upon another plan, partly suggested by the plan in the Cultivator, which works so admirably that I send you a description of it. I first made me a box 4 feet in length, 20 inches wide and 17 deep, without top or bottom; I then took a piece of sheet iron, 4 feet 4 inches long, and 2 feet wide, which I placed upon the bottom of the box and nailed it fast with common shingle nails, driven through the sheet iron into the edge of the boards, about 1½ inches apart. This left the iron projecting over the box about 2 inches all round. This was then turned up and nailed again, on the sides and ends of the box, so that the sheet iron forms a kind of pan around the box, two inches deep, which will make a bottom sufficiently tight to hold water. I then made a false bottom, full of holes, nearly as described in the Cultivator, which I let down so as to leave a space of about one and a half inches between it and the sheet iron. A cover like a chest lid completed the box. I then set the box upon two lines of bricks laid in mortar, with a chimney carried up six feet at the further end, the front end being left open to put in the wood, very much as you would set a kettle—the bottom of the box rested upon the arch about half the width of a brick, and was plastered round with mortar, so as to confine the heat to the sheet iron bottom. A few bars of iron were laid across the arch for grates to hold up the wood and bring the fire in close contact with the box. I then put sufficient water in to fill the small space between the sheet iron and false bottoms—fill it up with apples, potatoes, or other vegetables, and it is ready for steaming. A box of the above dimensions holds full four bushels, and one hour and a half is all the time that is necessary to steam apples and potatoes effectually. With dry hemlock limbs, I have in one hour, steamed them so that those on the top cracked open. There is no danger of the supply of water failing, as I have steamed several kettles full without any additional water. Farmers would probably need a box of larger dimensions:—for this purpose they have only to add to the length and depth of it, to get the size wanted. I consider the width named the best adapted for economy in fuel. If any one wished, the box could be made with a sliding end, as described in the Cultivator—but I find no difficulty with mine by the filling up of the holes in shovelling out the potatoes, &c. having bored them with a taper bit from the under side.

The advantages of this, over other steaming apparatus which I have seen, appear to me to be—

1st. Its cheapness and simplicity. The principal outlay is for the sheet iron, which can be procured at almost any tinner's shop in the country, for ten or twelve shillings, and a few nails and boards—stone may answer the same purpose as brick to set it it upon, and any person can make and set it.

2d. A saving in fuel—the fire being brought so near the water, which is spread out on so large a surface, and the iron thin, it heats so as to throw off steam in a few minutes, and continues to throw it off in large quantities, with only a small fire.

3d. The vegetables are all steamed alike, the steam being thrown off from the whole surface of the water, passes up through the false bottom, to every part of the box alike.

I have also very little doubt but the apparatus will be durable.

If you consider this improvement of any advantage to farmers and others, you can give such a description of it in the Cultivator, as will enable them to take advantage of it. Though not a farmer myself, I conceive it the duty of every one to do all that he can to promote and encourage that all important branch of human industry, especially at a time when the rage for speculation, or other less important pursuits has drawn off so large a portion of young men and others from the cultivation of the soil, that our rich and agricultural country cannot raise her own bread stuff.

Yours respectfully, A. MARKS.

P. S. By having the box made water tight, it may serve a very valuable purpose for heating water to wash, or for scalding hogs, &c. the water heating remarkably quick, and at little expense of fuel compared with heating it in common kettles, over stones and fire-places.

ITALIAN vs. SIBERIAN WHEAT.

Judge Buel—Dear Sir: I have seen the Cultivator for December, and notice a letter bearing Doct. Goodsell's signature, announcing his result in raising the Siberian wheat, and speaking in very disparaging terms of the Italian spring wheat. I would not in an ordinary case trespass upon your time or columns, but feel that this attempt to put down the reputation of the Italian wheat, is unjust and unsustained by the experience of one in a thousand.

The public have a deep interest in this matter, and would doubtless have read his letter with satisfaction, were it not apparent that it was written with the view to establish a character for his *favorate*, at the expense of a *favorite* with them:—which of these varieties of spring wheat shall best deserve the title of *best*, is yet to be proven, and that, not by an isolated case, but by general experience. It is a matter of moment, that the farming interest should not be put upon a wrong track; but in this instance, the Doct. will have an " uphill business," to convince them of the worthlessness of an article hitherto highly prosperous, an article that has been grown by more than 4000 of them the past season, in this county, and now actually furnishes excellent bread to more than half our whole population, and that too, in numerous cases, from impoverished lands, that would not yield a crop of oats. *This property alone* should give the Italian spring wheat a name above every other, as no other in this country possesses one so valuable, except such as are in common; none other will grow well, and *produce a good crop upon a poor and worn out soil.* It has been grown for five seasons in this county, and has not failed in any, it rarely ever rusts, although winter wheat is ruined all around it; it has justly obtained an enviable popularity, as the Doct. knows, as a sure crop, a good crop, and a larger;—it is the only article about which there was scarce a difference of opinion, until the letter in question—here it will effect little—abroad it may prevent a million from enjoying a certain good, which unlike the other, has not yet to *establish* a reputation. A " single swallow does not make summer"—nor the yield of a single field fix unqualifiedly a character. Many folks make wild *guesses*; the Doct. says his Quaker friend " *thinks*" that he shall thresh nearly or quite 40 bushels Siberian from one bushel sown. Now this is great, if he has *guessed* truly; yet I can tell him of a man who says he sowed but half a bushel of Italian wheat on an acre of land, and that it yielded him 30 bushels after threshed, and his account is not *guess* work.

Italian wheat is somewhat shrunk this season, but far less so than winter wheat, and it is only that which was blown down and lodged, so far as I have heard, that was much shrunk. The Siberian, it seems, shrinks also, by the account given in the letter, and like other wheats, is liable to " the thousand ills that wheat is heir to"—saving and excepting the *bug*, which looked so like a " bed-bug," a harbinger of " weal or woe"—perhaps to nobody. We shall look for the honest result next year.

J. H. *of Oneida.*

TRAINING VINES.

New Haven, (Conn.) March 13th, 1837.

Jesse Buel, Esq.—Sir: I have had the Isabella Grape in my garden since 1819; but the crop of fruit has not been good and full, oftener than once in three years. The failure has usually been caused by the *rotting* of the green fruit, about the time it attains its full size. Every means of prevention that I could find any where suggested, has been faithfully tried; such as long and short pruning and no pruning—thick and sparse, upright and horizontal training—topping the fruit branches, thinning them out, plucking the leaves, &c.—without any perceptible benefit.

But having read, or been informed, (I cannot say which) that in the vineyards of Madeira, the vines are trained on a horizontal arbour, about three feet high, in such manner as completely to shade the whole ground, it occurred to me that it might be important, where the summer sun is very powerful (as with us) to shade the roots of the vines. To ascertain the effect of such a protection of the roots, in the fall of 1834, I pruned about 20 young vines, which had grown at random, so as to leave from 5 to 8 branches, spreading all ways from the centre or root, like the spokes of a wheel, about 4 feet. These I tied up to stakes set in a circle around the vine, leaving the branches from 12 to 18 inches from the ground. The vines were left in this state to grow as they would—and by mid-summer (1835) they completely shaded the ground, for 6 or 8 feet from the centre. *No fruit rotted on these vines.* The experiment was continued upon the same vines through the last season, and with *the same result*. During both seasons the fruit on vines trained upon an upright trellis, (the roots of course exposed to the sun,) has been in a great measure *lost by rotting.*

This experiment I should consider decisive, but for one circumstance; the vines first mentioned were *young* and the others *old*. Whether this has affected the result, is yet to be determined.

I ought perhaps to remark (what I was not prepared to expect) that the fruit ripened on the vines, shaded as before described, a fortnight earlier than on the others, and was in every respect better. N. D.

October 10th, 1837. The experience of another season gives the same result stated above, except that none of the grapes ripened, being destroyed by the frost, October 4th–5th. To ascertain the effect of the vine's *age* upon the fruit, I trained a vine upon a trellis, last spring, of the same age with those whose roots have been shaded, and the fruit upon it has been much mildewed and considerably rotted, while the fruit on the other vines has been bright and sound.

TO DESTORY GRUBS.

Killingly Centre, Ct. November 28th, 1857.

Judge Buel,—I have seen a question asked in the Cultivator what would kill the grub worm, the answer was salt, lime and soot. I profess no skill in agriculture; but one day last summer I saw one of my early bush beans was destroyed by the grub worm, the next day there was about twenty eaten off. I then thought I would kill or cure; so I went into the house and took one pint of beef brine, made of clear salt, and added four quarts of water, which I put at the roots of about forty hills of beans; after that there was not another bean eat off. Now could not salt be mixed with manure, that made use of for corn, to keep off the worms. If there could be such a thing, it would be well, I think, to publish it, but not make use of my composition. J. FIELD.

The beans I salted flourished and bore well.

INQUIRIES RELATIVE TO DRAINING.

Jesse Buel,—Dear Sir,—Without compliments I address you, soliciting information on the cultivation of a certain piece of ground, a particular description of which I will give, and in so doing, I shall undoubtedly give a description of other land within the circulation of the Cultivator. The piece of land contains 55 acres 105 rods, north and south; 80 rods east and west, sloping to the west, falling perhaps six inches in a rod, and a little descent to the north. The soil I should call a clay loam, with but very little sand in it, very retentive of water, quite full of small, flat, soft stone, with some hard grey stone, and I presume not a limestone on the piece. The soil is from eight to twelve inches deep, resting on a subsoil of clay and stone, impervious to water. On these high lands we are subject to very heavy showers, in which water will fall several inches deep in a few hours, which, together with the spring and fall rains, and the melting of the snow, occasions a considerable part of it to be so wet with surface water, that it is unfit for ploughing. Now I will give my opinion of the best manner to carry off this surface water, and if I am wrong, my object in writing is to be corrected. It is this: make open drains north and south, say twenty or twenty-five rods apart, four or five feet wide at the top, and deep enough to go into the hard-pan five or six inches, with underdrains at proper intervals, and places to take the water down the hill to the west. The object in making the open drains so wide and shallow, is that the banks may not cave and, so that I can drive through them with a team.

I wish to inquire what effect lime will have on such a soil, as it is destitute of it? If thought to be good, how is it to be applied? And what will be the effect of marl, such as was sent you from Cortlandville, containing in 100 parts, 65 carbonate of lime? and how should that be applied? I know from experience that the Onondaga plaster has a good effect, and think every ton used worth thirty or forty dollars. And I can from experience recommend to farmers, to use their manure in their spring, and not let it ferment and rot in their yards.

I had thoughts when I began to write, of making several other inquiries, but I fear I shall tire your patience, so I shall conclude.

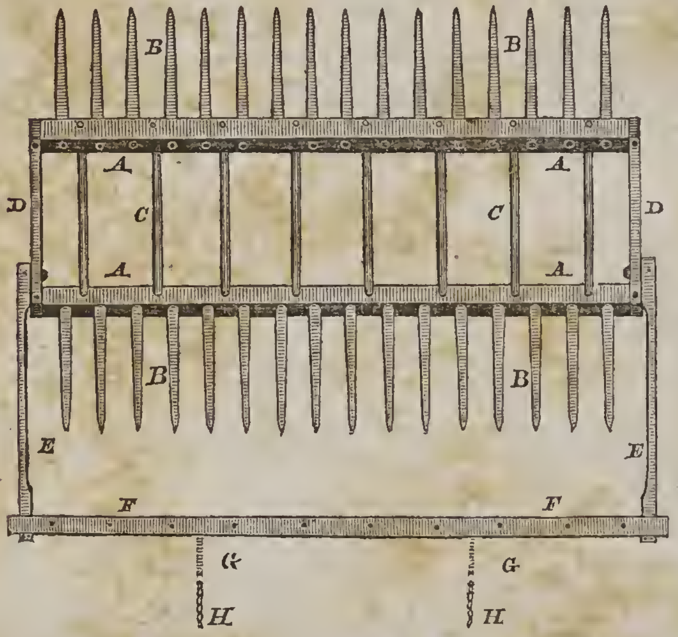
Yours respectfully, LUMAN BARBER.

P. S. The above communication was written before receiving the last Cultivator, in which my inquiries respecting my piece of ground are almost answered, but not quite; my piece is destitute of springs, except near the west side. The strata is different; the soil is very light and mellow when dry, very sticky and clammy if worked when wet. The subsoil is very hard, and rests upon a rock five or six feet below the surface. The rest of my farm is more level, soil and subsoil the same, and I presume the product would be much increased if it could be made dry. Open drains must be much in the way, and under drains I fear would be of no use on such a soil. L. B.

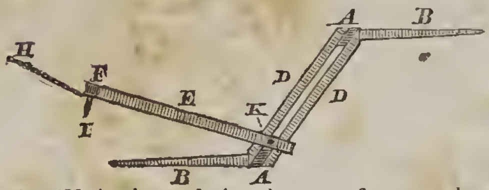
Summer Hill, Cayuga co. N. Y. November 14th, 1837.

If we apprehend aright the situation of the above described ground, we should substitute covered, or underdrains, for the proposed open drains to run north and south; and open drains on the northern and western borders only. If the surface ascends beyond the south bounds, an underdrain may also be necessary on that border, to arrest the water coming from above. The underdrains should have but a moderate inclination. Marl and mild lime will either of them constitute a proper dressing, when the ground is laid dry. Marl should be laid on, and exposed to the pulverizing influence of a winter's frost, before it is mixed with the soil. We refer, for directions for applying these fossils, to the back numbers of the Cultivator.—*Cond.*

PUDNEY'S REVOLVING HORSE RAKE—Fig. 47.



End view.



Stamford, Nov. 20, 1837.

This rake consists of two heads, A, A, and two sets of teeth, B, B; the heads being connected together by connecting rods, C, C, and end bars, D, D. The end bars also form a grove in which the slide pin, (K, in the end view,) moves from one head to the other, every time the rake revolves. The horse is attached to the rake by hooking the trace chains, G, H, into staples driven into the under side of the cross-bar, F, F. The rake is held by the teeth, which serve for handles when they are up, and for teeth when on the ground. Yours respectfully,

A. COWLEY, *for Pudney & Cowley.*

EXTRACTS.

HINTS TO STATESMEN.

ON THE MEANS OF IMPROVING THE AGRICULTURAL STATE OF A COUNTRY.

"Agriculture is the great art, which every government ought to protect;—every proprietor of land to practise;—and every inquirer into nature to improve."

Introductory observations on the Importance of Agriculture.

The prosperity of a nation, possessing an extent of territory, sufficient for maintaining its inhabitants, chiefly depends; 1. Upon the quantity of surplus produce derived from the soil, after defraying the expenses of cultivation; 2. Upon that surplus produce obtaining such a price at market, as will encourage re-production; and, 3. Upon the cultivator having such a command of capital, as may enable him to carry on his business with energy.

1. The surplus produce arises, from that inestimable quality possessed by the soil, which enables it, in proportion as it is skilfully managed, to furnish maintenance, for a greater number of persons, than are required for its cultivation. Thence proceed the profits of the farmer;—the rents of the landlord;—the subsistence of the manufacturer, and of the merchant;—and the greater proportion of the income of the state. That surplus marketable produce, therefore, is justly considered to be, the principal source of all political power, and of personal enjoyment. When that surplus produce does not exist, (unless in circumstances of a very peculiar nature,) there can be no flourishing towns;—no military or naval force;—none of the superior arts;—none of the finer manufactures;—no learning;—none of the conveniences and luxuries of foreign countries;—and none of that cultivated and polished society at home, which not only elevates and dignifies the individual, but also extends its beneficial influence, throughout the whole mass of the community. What exertions ought not then to be made, and what encouragement ought not to be given, to preserve, or to increase, so essential a resource, the foundation of our national prosperity!

In order to form some idea, of the amount of the surplus marketable produce, on very different soils, under a judicious system of cultivation, the following statements were drawn up by two intelligent farmers, respecting that amount, in their respective occupations, the one possessing land principally clay, the other a turnip soil.

[We omit the details. The clay farm produces, after deducing the total consumed by all the laborers, who subsist upon the produce of the farm, all consumed by the working cattle, and the grain required for seed—and these absorb one-half the produce of the farm—after these deductions, the average product is eleven bushels and a fourth of grain, and twenty-one pounds of butcher's meat, for each acre. The sand farm, after making like deductions, averages per acre ten bushels of grain and 35 pounds of butcher's meat. This is considered surplus produce.]

To these estimates of surplus produce, there are to be added, the hides, the skins, the wool, the tallow, and a variety of other articles, the basis of many important manufactures, the value of which, though it is impossible to give its amount correctly, from its great uncertainty, and the fluctuation of prices, must be very considerable.

If such are the beneficial effects resulting from cultivating of the soil, (and the facts are established beyond contradiction,) what source, either of domestic industry, or of foreign commerce, can in any respect be put in competition with such a mine of wealth, when extended over a great empire?

2. But the prosperity of a nation, as already observed, depends not only on having a great marketable surplus, but also on its disposable produce fetching such a price, as to encourage re-production. This was the case during the last war; and hence the nation was enabled to persevere in it for so many years, and finally to bring it to a successful conclusion. By means of a great surplus of agricultural productions, sold at a high price, the profits of the farmer, and the rents of the landlord, were doubled; these two classes, were thus placed in a condition to pay very heavy taxes to government;—to engage in great undertakings of a private description;—to furnish employment to laborers, to whom the price of bread was of little consequence, while work was always to be had, at wages proportioned to the price of corn;—and to consume immense quantities of merchandize, and articles of manufacture, by means of which, those two branches of national industry were supported, when they were in a great measure deprived of foreign markets. History does not furnish an example of a nation, which *abroad*, made such incredible exertions, while *at home*, so many millions of people enjoyed all the necessaries, the comforts, and most of them the luxuries of life; the whole originating in prosperous agriculture, without which, our manufacturing industry, our commercial relations, or the necessary operations of our finances, could not have been carried on.

3. Nor is it alone sufficient, that the farmer should have a price adequate to promote re-production: he should likewise have, such a command of capital, (and if it must be borrowed, at a moderate rate of interest,) as will enable him to carry on his business with energy. Indeed, when that takes place, it lays the foundation of general prosperity. It will not be disputed, that a hundred persons may be put to the greatest inconvenience, because one individual, *at the head of a chain of circulation,* cannot pay one hundred pounds. Enable him to pay that sum, and progressively, those connected with him are relieved. "But it is *the farmer* who is the first link, in the great chain of national circulation." When he is supplied with money, he is enabled to pay his rents regularly;—the landlord is thus enabled, not only to employ a number of laborers, but to purchase goods, from the British manufacturer, and the foreign merchant;—the latter finding thus a demand for foreign goods, is enabled, in return, to export British manufactures to foreign markets;—by means of an abundant circulation also, the revenue is paid without difficulty, it is regularly remitted, and furnishes the means of paying the dividends due to the stock-holders; the credit of the country is thus maintained, and every class in the community prospers. The whole, it is evident, *originates with the farmer*, the first link, in the great chain of circulation, whose basis is the plough.

The superior importance of agriculture, has been recently proved, in a manner so convincing, and unanswerable, that the question ought, now, to be forever put to rest. It is well known, that all the resources of the country were put to the test, by the strict manner in which the tax on income was exacted. By analysing, therefore, the produce of that tax, under all its several branches, the real foundations of our national wealth and prosperity, may be ascertained, with a degree of correctness, previously unattainable. The result of the inquiry is as follows:

1. Taxes on landed property,		£4,257,247
2 Ditto on the farmers or occupiers of land,		2,176,228
Total agricultural classes,		£6,433,475
3. Taxes on commercial property,	£2,000,000	
4. Ditto on professions,	1,021,187	
		3,021,187
Difference in favor of the agricultural classes,		£3,412,288

Hence it appears, that during that eventful period, when the ignorant, and the prejudiced supposed, we existed solely by trade, and that we ought to be considered merely as a nation of *shopkeepers*, it was the wealth arising from the productions of the soil that chiefly enabled us to go on; it was successful agriculture, that furnished us with the means of carrying on the contest, and of bringing it to a triumphant conclusion.

Nor is this subject to be dwelt on solely in a financial point of view. Let it at the same time be considered, that it is the land which furnishes the raw materials of the greater part of our manufactures; that the proprietors and occupiers of land, supply the best markets to our manufacturers and merchants; and that through them, the greater part of all other professions gain their livelihood. Numbers of the fundholders are little aware, that upon the prosperity of agriculture, the regular payments of their dividends must principally depend. *For it is to be observed, that as the property tax was imposed on all the classes of the community, in proportion to their wealth or income, hence, the taxes payable in every other way, by each class, and every individual in each class, who spent his income, must be paid, in nearly the same proportion, as the tax on property.*

It cannot, at the same time, be doubted, that the agricultural classes, are much indebted to those employed in trade and manufactures, for consuming the produce of the soil. But still, it is the surplus productions of agriculture, raised under the superintendance of the owners of the soil, and by the skill and industry of those who occupy it, which constitute the real basis of our national prosperity; and exported manufactures, are nothing else, but so much beef, mutton, wheat, barley, &c. converted into another, and more convenient shape. Where manufacturers, however, are maintained, by the productions of foreign industry, and in particular, when the articles they manufacture, are produced from foreign raw materials, as fine wool; instead of being an advantage, they have the effect of depreciating the value of domestic agricultural productions, and bringing in foreign articles, into competition with them, by means of British capital. The paltry profits of the manufacture, are nothing compared to the mischiefs which are thus occasioned, to the real sources of our prosperity.

It is to be hoped that these statements, will satisfy every impartial individual, that the strength and resources of this country, principally arise from the productions of the soil;—*that the land, is the basis of our national wealth*, and that on the amount, and the value of its productions, our commerce and manufactures, and the payment of the public creditors, must in a great measure depend. The revenues of the church;—by far the largest proportion of the payments to the poor;—and various other public charges, are likewise payable from the same same source. Hence, nothing can be more impolitic, than to neglect the adoption of any measure, by which the interests of agriculture can be promoted; or more hazardous, than to take any step, by which its prosperity can be impaired, or those who live by it, impoverished, much less brought to ruin.

The means, therefore, by which the agricultural prosperity of a country can best be promoted, merit our peculiar attention.

It has long been considered, as an incontrovertible proposition, and approaching to the nature of an axiom, "That whoever could make two ears of corn, or two blades of grass to grow upon a spot, where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together."

There never was a greater instance of sophistry, than this doctrine of Swift's, who seems not to have been at all aware of the immense benefits conferred upon agriculture, by a judicious system of civil policy. In fact, the prosperity of agriculture, *depends upon the politician*. The better and the more equitable the civil policy of a country, the more perfect will its agriculture become. Those politicians or statesmen, therefore, who, by removing every obstacle, and furnishing every proper encouragement to agriculture, promote its advancement, have a higher claim to the gratitude of mankind, than those who have merely performed a secondary or practical part, which part, they never could have performed at all, but under the protection of wise laws, regularly administered, and executed with impartiality and vigor.

This leads to the most important discussion, perhaps, in the whole range of political inquiry, and respecting which, the most ill-founded prejudices are unfortunately entertained, namely, "What public encouragements, for the advancement of agriculture, ought a wise government to bestow?"

Many able men, *reasoning solely from the abuses to which the system of encouragement is liable*, have thence been induced to condemn th policy, and to recommend, that of giving to individuals the entire freedom of exercising their industry, in their own way, without any legislative interference whatever. They dwell much, on the reply once made by some of the principal merchants of France, to the celebrated Colbert, who having asked, *what government could do for them?* was answered, "Laissez nous faire," *(Let us alone.)* On the other hand, they totally reprobate *the mercantile system*, as they call it, (or a series of laws which have been enacted in this country, for promoting the prosperity of commerce,) as in the highest degree impolitic; though, under that very system, the commerce of Great Britain, has arisen to a height altogether unexampled in history. But as our legislature have wisely deemed it expedient, to protect both our manufactures and commerce, which, under such a system, have so eminently flourished, no good reason can be assigned, why, in a like manner, and on the same principles, agriculture ought not to be encouraged in Great Britain, where it produces such a great revenue;—where, with a thousand millions of national debt, we still have above twenty millions of acres, lying in a state comparatively waste and unproductive;—where the population is rapidly increasing;—and where it has been found necessary for some years past, to import no inconsiderable portion of the means of our subsistence.

It is certainly better to let agriculture alone, than to establish injudicious regulations respecting it. But if a government will make such inquiries, as may enable it to judge of what can be done with safety and advantage; and will promote agricultural industry, not only by removing every obstacle to improvement, *but by granting positive encouragement;* agriculture will prosper with a rapidity, and will be carried on to an extent, which is hardly to be credited; and in a much superior degree, than by the "let alone system," under the torpor of which, ages might pass away, without accomplishing, what might be effected in the course of a few years, under a judicious system of encouraging regulations.

The principal encouragements, which a wise and liberal government, will naturally be anxious to bestow, for the purpose of advancing the agricultural prosperity of a country, may be classed under the following heads. 1. Removing obstacles to improvement; 2. Promoting the collection and diffusion of useful information; 3. Giving a preference to domestic productions in the home market; 4. Encouraging the exportation of any surplus produce that may remain on hand, after the demands at home are supplied; 5. Extending, by every prudent means, the cultivation of waste lands, in order that the productive territory of the country may be constantly on the increase; 6. Granting public aid to substantial improvements, such as roads, bridges, canals, &c. on which the agricultural and general prosperity of a country so essentially depend; and, 7. Countenancing the establishment of corporations, to furnish the means of carrying on such improvements, as are beyond the power of individual wealth or enterprise.—*Sir John Sinclair.*

From the Hampshire Gazette.

BEES.

Mr. Hawley,—Sir: As it is customary when notice of a marriage is sent to the printer for insertion, to accompany it with a slice or loaf of the bride's cake, I lately took some honey from a bee hive, and I think there is no impropriety in offering a bit of honey to the printer. Therefore I take the liberty of so doing. I compare the diligent editor of a public newspaper, in some measure, to the industrious honey-bee. By the astonishing insinct in the nature of bees, they labor all the day, and gather sweets from every opening flower, and other things, and convert it into that delicious article, honey. So the industrious and diligent editor toils day and night, hot or cold, rain or shine; sometimes perplexed (I conclude) to select and write such matter as may please those who patronize his paper; and it seems to me that sometimes they must hesitate to decide what will please, and what will not; and after all the pains taken, and the best possible selections made, there will be a small pack of grumblers, condemning the paper;—but I have noticed that such characters are very tardy to pay for their paper.

I took up a hive of bees not long since; the swarm came out in July, and it was about eleven weeks from the time it swarmed. The hive contained sixty-three pounds of honey-comb, and all of it, excepting four pounds of dry comb and bee bread, was filled with as nice honey as I ever saw. I do not know it to be an extraordinary yield; but it seemed to be a large quantity for a middling size swarm to collect in less than three months. I shall now briefly state, in part, the method I pursue in the management of bees. To secure and protect the bees from the ravages of the miller or bee-moth, which has been so destructive to them of late years:—Early in the spring, before the millers appear, the swarms that I have kept through the winter, are placed on the bare ground. I scrape the ground smooth in a dry place, and there set the hive for the season. When a hive is so situated, the millers do not deposite any of their eggs, either under or in the hive. In that position the honey is also kept cool, and I never have had any honey-comb melt down in hot weather, in a hive set on the ground. I have oftentimes, when a swarm came out, set the hive on the bare ground under the tree where they collected, and there let it remain all summer, securing it from wet, by placing a piece of board over the hive. In the fall, those hives of bees that I design to keep over winter, are put in the bee house, (Apiary.) It is not more than twenty-five years since I first saw or heard of the bee enemy, the miller, and for 22 years, or since I have practised setting the hives on the ground, I have not lost a swarm, nor received any injury from that mischievous insect.

In former times, when the bees swarmed, cow-bells, warming pans, fire-shovels and tongs, and any thing else that would make a rattling noise, were put in requisition to stop them from going off; and when the bees had collected into a bunch, a table must be placed under the limb, and covered with a clean white cloth. But ever since I have kept bees, I have rattled nothing to prevent them from absconding, nor set a table for them, but whatever the swarm is attached to, I lay it on the ground, and then place the hive, as far as I can, over the bees, and it is seldom that I ever lose a swarm. The greatest curiosity that I ever witnessed in the movement of bees, was several years ago. I had a swarm come off, and it gathered on an apple tree limb in two bunches, about three feet apart; the limb was cut off and laid on the ground, and a hive fixed partly over the largest parcel. The bees, however, seemed not inclined to enter the hive. Some time in the afternoon, I sat down near by, and watched them, suspecting they might rise to go off. They were quite settled down, and but very little movement among them. Of a sudden there were a number of bees, perhaps a hundred, sallied out from the bunch where I had set the hive. They crept along on the limb with a lively step, to the other bunch. Instantly there was quite a bustle, and suddenly the queen bee (as it is called) came out from the bunch, preceded by an escort or front guard of bees, as it appeared; at the same time, a sufficient number of them filed off to the right and left by an oblique step, as a flank guard; her Majesty passed along, slowly and gracefully on the upper side of the limb, and the bees in the rear, all followed in close column, so the commander in chief was escorted in fine style to the hive, passed in, the followers displayed column, (deployed) entered the hive in front, and on the right and left side, and within a few minutes most of the bees were in their new habitation, and out of my sight. D. C.

South Hadley, Oct. 23, 1837.

DRAINING—*(Concluded from page* 170.*)*

CONSTRUCTION OF DRAINS.

After the cause of the wetness has been discovered, and the most convenient place for discharging the water ascertained, the lines of the drains must be fixed, according to the principles already laid down, by means of pins, small pits, or plough furrows. If the work is to be done immediately, pins or small pits will be sufficient marks to direct the workmen; but, in case of its being delayed any length of time a furrow should be drawn with the plough in the line of each drain, which will shew itself two or three years; indeed, to prevent mistakes, from the marks being removed or trampled down by cattle, plough furrows are preferable to all other marks.

Open Drains.—In draining bogs or moss, where the drains do not reach the hard bottom, ditches are preferable to covered drains, for should stones be used when the bottom is very soft, they would sink, whereby the drains would become useless: indeed, in all situations where the ground will allow it, the principal drains should be open; and when they can become the division of fields, which, in many instances, is practicable, that should never be neglected. It would be unnecessary to give any particular directions for their depth or wideness, as that must depend on the quantity of water they are to convey, and on the nature of the soil and situation in which they are made: one rule, however, may be general, that the width at the bottom should be one-third of that at the top, which gives a sufficient slope to the sides, and the fall or declivity should be such as the water may run off without stagnation. In very soft soils, a greater degree of slope on the sides may be necessary; and in all cases where it is meant to receive surface water only, none of the earth thrown out should remain upon the sides, but should be removed to the nearest hollows; for when this is not done, their use is in a great measure counteracted. The earth, when left on the sides, prevents the surface water from getting into the drain—its weight causes the sides to fall in—makes it more difficult to scour or clean it—and adds much to its disagreeable appearance in the middle of a field. In cases where the auger or wells are obliged to be resorted to in open drains, they should never be made in the bottom, but on one side, with the outlet eight or ten inches above, (as shewn in plan 4, figure 2,) which will prevent surface or flood water depositing any sand or sediment in the boreholes, whereby they might be injured.

Shoulder Drains.—Any surface water or partial springs in moss and marshy ground, on which the large drains have no effect, and where stones cannot be used on account of the softness of the soil, is most effectually removed by means of shoulder drains. The mothod of making them, is by digging a trench from fourteen to sixteen inches wide, the sides perpendicular to the depth of two or three feet, and then by taking out the last spit with a spade, the breadth of which is three inches at the bottom, and four or five at the upper part. A shoulder is left on each side, on which the sod that was first taken up is carefully laid with the grass side downwards, or if it is not strong enough, others must be cut in the vicinity, and the remaining space filled with the loose earth a few inches above the level of the surface of the adjacent ground. (See plan 4, figure 1.) Drains of this description, when properly executed and moles kept out of them, will operate for a great number of years.

Covered Drains.—In every instance where covered drains are used, their dimensions depend on the depth, the quantity of water they have to carry, and the kind of materials they are filled with. When the depth does not exceed five feet, two feet wide at top will be sufficient; but whenever it is more, the width should be increased four inches for every foot in depth, and the width at the bottom should be twenty inches, which will give a sufficient space to build a substantial conduit. When this is not attended to, and the bottom of the drain is made so narrow that the stones of which the sides of the conduit are formed are obliged to be set on their edges, and the covers laid on them in this insecure state, they, in many instances, fall down before the drain is half finished, causing it to burst in a very few years, and often forming springs in the driest part of the field.

In digging drains, there are several circumstances which, if attended to, will greatly facilitate the execution of the operations, such as having the stones laid down by the upper side of the lines of the drains before the work is commenced, to be ready in case the sides should slip or fall in, which often happens in mixed soils, as, when this precaution is not attended to, the expense is not only considerably increased, but the work is done in a less accurate manner. Particular care must also be taken that the bottoms of the drains are made with a regular descent, so that the water runs from the one end to the other without standing dead; and where bore-holes or wells are necessary, they must be made before the conduit is laid, in order that the sand may be removed which the water may throw up from the stratum below, and would otherwise be deposited in the bottom of the drain, which would thereby be rendered useless.* The dimensions of the conduit depends upon the quantity of water it has to carry; thus, in an outlet drain, it requires to be larger than in a cross drain, which has only the water collected in itself to discharge. In general cases, therefore, the conduit in an outlet should be made from nine to twelve inches square, and, in cross drains, from four to six inches square. When the bottom of the drain is very soft, it must be laid with flag stones, to prevent the materials from sinking; and the stones forming the side walls of the conduit must all be laid on their flat beds, and covered with strong covers well joined together and packed at their ends; the space above, in clayey soils, must be filled with stones, broken to the size of a man's clenched hand, to within twelve inches of the surface of the ground, which remaining space must be filled with porous earth. Before the earth is put into the drains, the stones must be covered with straw, rushes, or turf with the green side downwards, to prevent the loose particles from subsiding into the crevices among the stones. In cases where all the water comes from bore-holes, or rises in the bottom of the drain, eighteen inches of small stones above the covers is sufficient; but when it comes from the sides of the drain, it is necessary to fill the drain above the covers with some kind of porous substance, six inches higher than where the water breaks out; the neglect of this precaution is the reason why so many drains have so little effect in drying land. Figure 3, plan 4, represents a covered drain filled agreeable to the above principles, and which is well adapted in all cases when the drains are of a considerable length and depth, and have a great quantity of water to discharge.

In making covered drains, particular attention must be paid that they are not carried into the outlet at right angles, as their ends should be turned down in the direction the water is to run a short space before they join it. to prevent the water in the outlet depositing any sand or sludge in their mouths, which will be the case if this is not attended to; indeed it often happens, on almost every estate, that the drains are stopped and rendered useless from this precaution being neglected The mouths of the drains ought also to be well built and secured with iron gratings, to prevent vermin from getting into them; and it must be examined from time to time, to see that it is in proper repair, and the outlet kept a sufficient depth, so that the water coming from the drains may run away freely, otherwise it will remain stagnant in them, to the great injury of the land. To obviate this, it is advisable that a person should be appointed on every estate, under the superintendence of the factor or land-steward, to go through every field that has been drained, at least once a year, to examine the mouths and outlets of all the drains, and make any necessary repairs as he proceeds. Such an arrangement, I am convinced, would be very beneficial, and is highly necessary, as I have often found drains completely stopped in a year or two after they were made, and the land beginning to be wet again from this cause alone. Managers of landed property ought to be very particular in this department of rural economy; indeed a clause ought to be inserted in every lease, binding both proprietor and tenant to keep the mouths and outlets of drains in proper order at their mutual expense.

---

* This is often the case; for example, in draining Runnaby meadow, the drain B was completely filled with sand to the same level with the surface of the ground, within twenty-four hours after the bore-holes were made, which not only surprised many who went to see the operations, but even the proprietor believed that the drainage of that part of the field could not be accomplished; however, by persevering in removing the sand, and the strength of the springs diminishing in a few weeks, that part of the field was first dry.

Rumbling Drains.—These are well adapted for removing water from alternate beds of clay and sand ridges, and also water confined in porous soils with an impervious bottom, as well for receiving surface water from clayey soils. Their depth, in the two former cases, is generally about four feet, and twelve inches wide at the bottom; they are filled with stones, broken to the size of coarse road metal, to within ten or twelve inches of the surface of the ground, and, in clayey soils, the remaining space with porous earth. Wood is sometimes used in drains of this description instead of stones; but, as it is liable to decay soon, and the drains will consequently be destroyed, it cannot be recommended when stones, gravel, smithy danders, or even coarse sand can be procured. Indeed, whenever my opinion has been asked with regard to making drains with wood, my uniform answer has been against such a practice, having had experience of so many instances in which wood had been employed, although stones might have been procured in the same field, of the land having to be drained again within a few years; and, consequently, I could not consider myself acting candidly towards my employers in advising it. An instance of this occurred at Wall-house, Linlithgowshire, a few years ago, in which I was called on to make a plan to drain the grounds immediately around the mansion-house, and having examined it, I found that the whole had been drained some years before, and the drains filled with thorns and other brushwood, which had decayed, and, the clay having fallen in, springs were formed in many places in the lines of all the drains. What surprised me was to find them laid off in such a manner that there was no occasion to alter any of the old lines; and having inquired who was the engineer, I was answered, your late brother. Being, however, aware that he never recommended drains to be filled with wood, if stones could possibly be procured, and more especially that he would not have done so in draining pleasure ground, where, in most cases, no expense is spared to do the work in the most substantial manner, I suspected that the work had not been executed according to his plan, and, upon making further inquiry, I found that my suspicions were correct, his specification having directed them not only to be made with stones, but also to have been from two to three feet deeper, which was exactly what I caused to be done, whereby a complete drainage was obtained.

Tile Drains.—These are best calculated for removing surface water, and are made just wide enough to let the tiles be put easily into them; they are, in most cases, about twenty inches deep, but tiles may be used at any depth, provided the drain is filled with broken stones, or other open materials, to nearly the surface of the ground. The tiles should always be *well burnt*, and laid on soles, as whenever this is neglected, which is too often the case where tile draining is now practised, their duration will unquestionably be very short, whereas hard burnt tiles will last for almost any length of time without mouldering down.* The expediency of using tiles instead of stones depends entirely on circumstances; for, if stones are to be found, whether by collecting on the surface or quarrying within the lands that are to be improved, or even if they can be procured within a mile of the operations, tiles should never be used. Stones are preferable to tiles in making drains in all kinds of soils, provided a sufficient quantity are used, but where only a few inches of broken stones are used in a drain, well burnt tiles laid on thick soles, and covered with turf or any other porous substance, would answer the purpose better; and in porous soils, where the water is found at or near the bottom of the drain, if six or eight inches of broken stones were used in packing and covering them, a more substantial drain would be formed. In clayey or mixed soils, where the water enters the drain at different depths, stones, gravel, or smithy danders, are the only materials that can be used with advantage; in any case, however, where tiles are used, the space above them must be filled to the surface of the ground with some porous material, otherwise the drains will be useless, and the undertaking will prove a complete failure.

In the preceding pages, I have endeavored to set before the reader, in as plain a manner as nature of the subject would allow, a short practical detail of the principles required to be applied in draining the different descriptions of land, in all its diversified variety of soils, strata, and inequalities of surface, and I hope will, in some measure, convince landed proprietors and those engaged in agriculture, of the folly of supposing that any single rule can be applicable to every case, without being modified to the particular circumstances to which it is to be applied.

To drain land effectually, and at the least expense, must surely be the desired object of those who engage in it; but how can they ever expect to attain this, if the work is executed without any consideration of the cause from which the wetness proceeds, as is too often the practice in this country. Thus, when a field is injured by wetness, no matter from whence it comes, all that is thought necessary to dry it, is to make drains straight to the wettest place, and through the hollowest part of it, and if these have not the desired effect, others are added, and the work-people are bound to make them a fixed depth, and, after cutting and carving in all directions, the land is partially dried, and, in some instances, completely, but at three times the expense it would have been if they had been properly directed. The person engaged in this arduous undertaking believes himself a complete drainer, and tells his master that there is no occasion for employing a professional man to lay off the drains, for he can do it as well as any man, and at half the expense; the master believes him, and being glad he has such a clever person in his employment, gives orders to commence operations, which are carried on for two or three years, when, after having spent a considerable sum of money to little or no purpose, a professional man has to be sent for to investigate the cause of the bad success and provide a remedy, which has generally to be a complete renewal of the operations upon other principles. Besides the instance at Castle Strathallan, already mentioned, of land having to be drained anew, another case occured in which I was employed near Lanark, where the person acting as land-steward having prevailed on the proprietor to let him drain two fields with a number of small drains, the result was, after spending considerable time and capital, the land still continued very wet. When I was called upon, I found that not only much deeper drains were necessary to remove the evil, but also considerable alterations were required in their directions; which being executed, has proved completely effective in drying the land.

A similar case occurred at Dargill, in Perthshire, the property of Lord Willoughby de Eresby; the soil of the field is of a light nature, with a sub-soil composed of a mixture of gravel and clay, from four to seven feet deep, under which lies the stratum, composed of sand and gravel, which contained the water. The former tenant spent a great deal of money in attempting to drain it, but with no effect, as the drains were not deep enough to reach the cause of the wetness, on which account the field lay nearly waste for several years. His lordship being anxious to bring it into cultivation, I was desired to get it drained: and, accordingly, I found it necessary to deepen the outlet, and to have it covered, on account of its great depth: the conduit was made twelve inches wide and two feet high, which not only gave the necessary fall for the drains in this field, but also for others connected with it. It was also necessary to make three new drains in this field, instead of the numerous small drains which were made by the former tenant, one four feet, one five feet, and the other seven feet deep, which completely answered the purpose, and made it nearly as valuable as any other part of the farm. I could point out many other such instances, but I consider that those already stated are sufficient to put it beyond doubt, that if any drainage is executed without due attention to the quality of the soil and the nature and inclination of the strata, a failure will most probably be the result. Accordingly, every precaution ought to be taken before any operations are commenced in an undertaking on which the whole success of every other branch of agriculture depends; and, therefore, every circumstance of the art must be weighed and strictly observed, otherwise landed proprietors will most assuredly be led into serious mistakes. To obviate this as far as lies in my power, I have been induced to draw up this practical essay, with the view of its being the means of introducing a more perfect knowledge of the principles necessary to be applied in draining every kind of land; and which I have found, during thirty years' practice,* to be uniformly successful in every case where the plans and speficication were strictly attended to. This will not, however, be the case if alterations are made, as is frequently done, with the plans of professional men, and which I have sometimes experienced myself, in the drains not being made either the depth nor filled with the same quantity or quality of materials as prescribed, and even, in some instances, the lines of the drains have been altered, consequently the land has been imperfectly drained, whereby the system has come into disrepute, as not answering the soil, or on some other frivolous pretence.

Too much cannot be said in favor of draining, which, particularly when conducted on proper principles, must be beneficial to all parties concerned. Whatever, therefore, may be the defects of this essay, I hope it will call the attention of agriculturists to this system, as first practised by Elkington, and which has proved so useful, not only in our own country, but also in others, as will be seen by the report of the Archbishop of Sweden to the Royal Agricultural Society at Orebro, which will be found in another part of this work; and I trust that what I have said will shew that it ought to be vindicated and encouraged by every one who has the welfare of agriculture at heart, until another shall be produced superior to it, which, assuredly, has not yet been done.

---

* In draining the park at Grimsthorpe, Lincolnshire, about three years ago, some drains made with tiles were found eight feet below the surface of the ground; the tiles were similar to what are now used, and in as good a state of preservation as when first laid, although they must have remained there above one hundred years.

* During the above period, many hundred miles of covered drains, averaging five feet deep, have been made, under my direction, in this country and Sweden. On the Perth estate alone, ten miles have been made annually for several years past, which, in every instance, has been attended with success.

[The entire work, of which the preceding is but an extract, may be found in the *Farmer's Library*, an agricultural periodical published by S. Fleet, New-York.]

Young Men's Department.

[*For the Cultivator.*]

ADVANTAGES AND PLEASURES OF RURAL LIFE.

> "O, friendly to the best pursuits of man,
> Friendly to thought, to virtue, and to peace,
> Domestic life in rural pleasure passed!"

How pleasant is a rural life! An unambitious man, who is content to live on small gains—who is not over desirous of wealth, or what the world calls honor, can find, in almost every thing in Nature, something to call forth his mind to reflection and contemplation, and to lead it up to the Great Source of all life and being. There is something in a natural scene,—a landscape, a forest, a river, or lake, which awakens in the mind sensations of pleasure beyond any thing which is realized by the man who is continually confined to business in cities. Besides this, it is more favorable to the cultivation of virtue and moral feelings. A person living in the country is free from the temptations to dissipation and voluptuousness, which present themselves at every corner of the streets of large cities.

Young men, in particular, possess a strong natural desire for amusement and pleasure, and they are led by the many opportunities which present themselves, as well as the fashionableness of it, to become votaries of the theatre, the game house, and other vicious establishments. From such temptations youth in the country are in a great measure free. They can associate together without being lead into crime. They can walk through the verdant fields and enjoy the fragrance of the balmy air without being assailed by a profligate, who would gladly make them like himself.

Another consideration which heightens the value of a country life is its healthfulness. The salubrity of the air which sweeps across a forest or cultivated field, fraught with fragrance of the herbage, is the most pure of any; it revives the spirits and is most congenial to health. If I wished to enjoy rational and virtuous pleasure, such as Nature has designed we should enjoy, I should certainly choose a rural scene. There I could be comparatively free from disturbance by the midnight drunkard, and from the oaths of profanity, which we cannot fail to hear almost every time we walk the streets of our populous cities;—free from that obscenity which there too stalks abroad, and appears in enchanting characters in the bills of theatres and other public hand-bills; and free from the distressing curse which trouble the man of business there. Were there nothing in the quiet of a rural life more than its tendency to lead men to a calm, contemplative, peaceful state of mind, it would appear that these were a sufficient inducement for adopting it. But such is the power of fashion over men, and such their love of splendour and greatness, that we find but few who are willing to give up to it. They appear to wish to keep their minds as far removed from themselves as possible; and to think that were they to be placed in a situation where they could not have access to their gay though heartless companions—where their minds would be turned in upon themselves, and they be led to reflect on their ways, would be a situation almost as miserable as they could conceive. They are continually asking for something new—something to keep up the excitement, and expel all serious and sober thoughts from their minds. There is a vacuity in the minds of fashionable people without some such excitement which almost makes them sick of every thing around them, and even of life itself. This arises principally from idleness;—from having nothing on which to fix the energies of the mind. Despising all manual labor as mean and boorish, they would think it degrading to be employed in any kind of useful industry. In fact, "to kill time" is the great business of a large portion of community. The more successful they are in accomplishing this, the more honor they claim to themselves. With such a mind, it is not surprising that men should abhor the quiet, unaspiring humility of a rural life. That it is humiliating I allow; but this humility is one very important ingredient in human happiness.

It has been very wisely said, that no applause is of any value unless we have with it our own approbation. The man who amasses wealth by means which his conscience tells him are wrong, may receive honor from the multitude. He *will* receive it. Riches *do* procure for the possessor a certain degree of respect from all classes. But will that honor advance in the least his own happiness? Will it support his mind in trouble like a consciousness of rectitude? I answer, no! Will it not rather, when he thinks of himself, make heavier the lashings of conscience? I believe a temptation to make money *fast*, and get *immediately* rich, is ruining thousands. Such is the desire for wealth, that men are tempted—strongly tempted, to use any means to acquire it, whatever may be their moral tendency. They engage in reckless speculations; lay out a piece of forest land into village lots, and sell them at an incredible price—launch into business, and into debt without counting the cost, and are obliged so give up their effects to their creditors. And even if successful, there is, perhaps, greater danger. It has been always observed, that a fortune very quickly gained, generally ruins the possessor. There is something to enchanting—so fascinating in riches, that very few can receive the smiles of fortune with an uncorrupted heart. There is danger—great danger here where few anticipate it, or are prepared for it. The man who, by patient toil and industry, has acquired a competency, knows how to value and how to use it, but he who has gained a fortune as Jonah did his gourd, will in most cases be left like him to mourn its premature loss.

But if successful—should he gain his utmost wishes, and realize his most sanguine hopes, how it elates his heart! how it lifts him above his former associates! with what feelings of disdain does he look down upon those who are less adventurous than himself; who labor by small means to gain a comfortable, and an honorable competence! Having gained his fortune with so little trouble, and in so short time, there is danger of his running into excesses of all kinds, and thus ruin his health and corrupt his morals. It having cost him so little, he knows not how to appreciate its value. He has but little sympathy for those who are in want, for he thinks with a little exertion they might easily take care of themselves.

Besides, there is a proposition which I have never heard advanced. It is, that God has given to mankind a certain quantity of the necessaries and comforts of life to be used by, and are needful alike to all; and they who hoard up a greater quantity than is sufficient for their own use, deprive others of their legitimate share. This is supported by the fact, that in those countries where some are very extravagantly rich, many are equally disproportionately poor. It is a principle in political economy, that all idlers, including gentlemen who live on their fortunes, and all fashionable people who do nothing, and all non-producers, are supported at the expense of the industrious. There is no difficulty in discerning the truth of this. It is so plain that no one can easily mistake it. This being the fact, are those free from crime who amass enormous wealth? I mean those who amass it for its own sake, and for personal aggrandisement, and not to use it for the benefit of their fellow-men, less favored than themselves. There is certainly something noble in the men who make money for the good of their species. I honor such men; I respect them; I consider them indeed the benefactors of mankind. But for any lower object, I consider it doubtful whether men are free from crime who heap up wealth more than they themselves need. Thus we see it is a positive duty, binding on every man of wealth, to do all the good with that wealth in his power.

But my object was to examine the relative enjoyments of a rural and a city life. The man who is once infected with the mania of money making, cannot easily be persuaded to give up his object for one so unpretending as a rural occupation presents. The idea of making thousands is too fascinating for him to be induced to relinquish it. But what is the object of life? Is it not the attainment of happiness, both for the present and future life? And is money the only or most sufficient means of procuring this happiness? If it is, then let every man devote his entire energies to acquire riches; but if not, how foolish is such a course! That it is, who will pretend? That it is not, is proved by the experience of, perhaps, every one who has gained a fortune, if he would frankly acknowledge it. No; "a man's life consisteth not in the abundance of the things which he possesses." Happiness is not to be gained by any selfish means.

In the occupation of the husbandman there is very little to gratify a thirst for wealth, ease, or pleasure. The man who would adopt it, must expect toil; he must expect to work hard; but his labor is well compensated. He feels a satisfaction which money cannot give. This is no doubt the situation for which man is peculiarly adapted. He is fitted for labor; without it, life hangs as a dead weight upon him, and he feels weary of himself; by it he sustains his health, produces his subsistence, and enjoys many pleasing emotions to which the idler is a stranger. Thus it is that the curse denounced on man, when he was expelled from Eden, is to prove a real blessing. Nature presents to the mind many sources of rational enjoyment. Who can look over any part of our fair world, and behold the variety of its products, and how exactly they are adapted to the wants of animated existences, and to man, without feeling a glow of pleasure thrill his mind, and thankfulness arise from his heart to the Great Author of all this pleasing variety of beauty and usefulness? Who can look up and behold in the twinkling points above him, suns and other systems of world, without being divested of any desire to appear great in the estimation of his fellows! There is not the smallest object—a leaf, a plant, a flower or an insect, but will teach a lesson of wisdom to the reflecting mind. P.

Origin of Disease.—I will tell you honestly what I think is the cause of the complicated maladies of the human frame; it is their gormandizing, and stuffing, and stimulating these organs (these digestives) to excess, thereby producing nervous disorder and irritation. The state of their minds is another grand cause—fidgeting, discontenting yourself about that which can not be helped, passions of all kinds, malignant passions, and worldly cares pressing upon the mind, disturb the cerebral action, and do a great deal of harm.—*Abernethy.*

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

Vol. IV. ALBANY, FEBRUARY, 1838. No. 12.

J. BUEL, *Conductor.*

☞ *Office No. 3 Washington-street, opposite Congress Hall.* ☜

TERMS.—Fifty Cents per annum, to be paid in advance.

Special Agents.—L. & R. Hill, Esqs. Richmond, Va.; Messrs. Bell & Entwisle, Alexandria, D. C.; Gideon B. Smith, Baltimore, Md.; Judah Dobson, Philadelphia, Pa.; Messrs. Hovey, Boston, Mass; Israel Post & Co. Booksellers, 88 Bowery; Alexander Smith, Seedsman, Broadway, N. Y. Alex. Walsh, Lansingburgh, gratuitous agent. Any gentleman who will enclose us $5, free of postage, will be considered also a special agent, and will be entitled to every eleventh copy, or its equivalent, as commission.

☞ The Cultivator, according to the decision of the Post-master General, is subject only to newspaper postage, viz: one cent on each number within the state, and within one hundred miles from Albany, out of the state—and one and a half cents on each number, to any other part of the Union.

THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

TO SUBSCRIBERS.

☞ Conformable to our conditions—the Cultivator will be discontinued, after this number, to all who do not renew their subscriptions, or have not already paid in advance for the fifth volume—except in Albany and its vicinity. A list of agents to receive and transmit subscriptions is printed with the index, and accompanies this sheet. ☞ We beg that no bills of a less denomination than one dollar may be sent us, and that remittances may consist as far as practicable, of bills of New-York banks, or of those of adjoining states. ☞ We promise, that our coming volume shall not be less interesting, or useful, than the volumes which have preceded it.

CULTIVATOR PREMIUMS.

In pursuance of the proposition we made in the first number of this volume, the following premiums are awarded, being all that have been competed for in the mode prescribed. The ten dollar premiums, it will be recollected, are payable in plate, and the five dollar premiums in bound volumes of the Cultivator and monthly Genesee Farmer. Those to whom the first are awarded, will please to intimate the articles of plate they prefer, as table or tea spoons, cups, &c. in order that the proper inscriptions may be made upon them.

To Henry Hopkins, of Laurens, Otsego, for the most profitable acre of Indian corn, *ten dollars.*

To W. Miller, of Georgetown ⋈ Roads, Md. for the second most profitable acre of Indian corn, *five dollars.*

To Willard Cotton, of Madison county, for the most profitable acre of ruta baga, *ten dollars.*

To J. J. Bullock, of Albany county, for the second most profitable acre of ruta baga, *five dollars.*

To J. Smeallie, of Schenectady county, for the best directions for making English imitation cheese, *ten dollars.*

To the same, for the best directions for making butter, *ten dollars.*

To Aaron Petric, of Herkimer county, for the best directions for making American cheese, *ten dollars.*

A premium for the best plan of a barn and out-buildings will be announced hereafter—having three plans on hand yet unpublished, illustrated by several drawings, and which we shall publish as soon as the cuts are prepared.

We design to give notice in our next, of the premiums which we intend to offer for the coming year.

CIRCULATION OF THE CULTIVATOR.

The following is a statement of the number of copies of the present volume of the Cultivator, circulated in the several states and territories, viz:

New-York,	7,428	Delaware,	196
Virginia,	1,647	District of Columbia,	105
Massachusetts,	1,032	Wisconsin,	104
Maryland,	1,114	Georgia,	99
Pennsylvania,	969	Missouri,	50
Vermont,	939	Maine,	34
New-Jersey,	796	South Carolina,	30
Ohio,	780	Mississippi,	8
Indiana,	578	Texas,	1
Kentucky,	436	Alabama,	40
Michigan,	444	Rhode-Island,	39
Illinois,	366	Arkansas,	32
New-Hampshire,	284	Louisiana,	17
North Carolina,	219	Florida,	1
The Canadas,	204	Nova Scotia,	22
Tennesse,	170		

GREAT CROPS.

We invite the reader's attention to the statements we record in this number, of the ruta baga crops of Mr. Bullock and Mr. Cotton, and of the Indian corn crop of Mr. Hopkins. Mr. Cotton's crop exceeded 1,100 bushels, and Mr. Bullock's came up to about 1,000 bushels, the acre; and Mr. Hopkins' corn gave a nett profit of $155. Such results are highly creditable to the gentlemen who produced them, show the susceptibility of our soil for great improvement, and cannot fail to stimulate our farmers to profit by their modes of management.

The fact will bear repeating, that 1,000 bushels of ruta baga will go more than six times as far in keeping farm stock as two tons of hay, the supposed product of an acre. The ruta baga, at an allowance of one and a half bushels, or ninety pounds per day, will give $666\frac{2}{3}$ rations; while the hay, at twenty pounds a day, will give but 100 rations; and the turnips will furnish the best and most manure, and will ameliorate and improve the soil. Surely these examples are worthy of imitation.

In regard to the culture of the corn, we wish it to be remarked, as having a sensible bearing on the profit of the crop—1. That the soil was a warm sandy loam, the proper one for this grain; 2. That it was planted on a sward, ploughed in autumn, *but not cross-ploughed;* 3. that the crop had an abundance of *unfermented* manure; 4. That it was neither ploughed nor earthed in the culture; 5. That it was planted early; 6. That the crop was harvested by cutting it up at the ground; and 7. That it was well dressed with ashes. In most of these particulars Mr. Hopkins went counter to the old practice, and was highly successful in his experiment.

BREWERS' GRAINS,

Are extensively used in the neighborhood of cities and towns, by milkmen and others, as a cheap and beneficial food for milch cows, in winter. The scarcity of pasture in such places renders it desirable to store these grains up also for summer use, inasmuch as they are not to be had at the breweries during summer. This is done, on an extensive scale, about London and Edinburgh; and as the mode there adopted might be easily practised here, we shall briefly state what it is. The grains are laid up in pits, lined with brick-work set in cement, from ten to twenty feet deep, and of any convenient size. They are firmly trodden down, and covered with a layer of moist earth, eight or nine inches thick, to keep out the rain and frost in winter, and heat in summer. The slow and slight degree of fermentation which goes on, tends, say the dairymen, to the greater development of the saccharine and nutritive principle. Some have been kept two, and in one instance nine years, and have been perfectly good at the expiration of that period. A cow consumes about a bushel of these grains daily, which constitutes her principal food, the cost of which, in Great Britain, is four or five pence, and here about half that sum, or four or five cents. The pits should be kept closed till the grains are wanted to be used. In this way, hundreds, if not thousands of milch cows, are principally subsisted about London and Edinburgh during the summer.

Mr. Defreest, of Greenbush, put some grains into pits, made of plank, last fall, and covered them with straw. He opened one of them a few days ago, and found the grains in an excellent improved condition, except about three inches on the surface, which were injured by the access of air through the straw covering. Mr. D. is pleased with the result, but intends hereafter to cover his pits with earth.

THE GRAIN-WORM,

It is believed, has diminished the product of the wheat crop, in the districts which it has ravaged for two or three years, at least THREE-FOURTHS—that is to say, it has prevented the sowing of the winter varieties to a very great extent, and it has destroyed, at a fair computation, one-half of the crop which has been sown. Most of the wheat now grown in these districts is of the spring varieties, and these, unless sown late, fare very little better than the winter kinds. When, four years ago the New-York State Agricultural Society memorialized the legislature upon this subject, urging the propriety of offering large bounties for the discovery of a preventive of the evil, the Conductor of this journal was told by the chairman of the agricultural committee, who was from the west, that the subject was not worthy of a report, and consequently no report was made. We are only warranted in saying, that had a liberal reward been offered at that time, and had it led to the desired discovery, a million of dollars would have been saved to the farmers of the infected districts, and many millions more, in the coming years, to the state at large. And had no discovery been made no harm would have been done—no public money expended.

The grain-worm has now extended west to Ontario, and in all probability will in a few years pervade the entire wheat country of the west. Admitting that its effects upon the products of the wheat crop there should correspond with what they have been here, how immense must be its injury to our trade, our revenue, and to the cultivators of the soil. The wheat and flour brought upon the Erie canal, the last year, to the Hudson, was nearly equivalent to a million of barrels of the latter, while an equal quantity, probably, was retained for home consumption. A diminution of one-half of this product would leave very little to pay toll upon the canals, or to go to liquidate our foreign debt, as it has heretofore done. Deduct five hundred thousand barrels from the surplus, and this, at the present price, would amount to *five millions of dollars.*

It is true, we cannot drive the wheat-worm from our state, by legislation, any more than we can one dollar bills; yet by calling the attention of men of science, and of practical farmers, to the subject, by the hope of a liberal reward, an efficient preventive may be discovered, or one that will materially mitigate the evil. Man is made lord over animated creation; and he is presumed to be endowed with faculties, if suitably improved, that will enable him to exercise that supremacy efficiently. We see the ignorant and the indolent often victims to calamities, which the wise and the active foresee and avert. We have mastered many of the insect tribes that have preyed upon our crops, our cattle and our bodies; and it is fair, reasoning from analogy, to suppose, that we can master the grain-worm,—if proper and adequate encouragement is offered, by the state, for the discovery of a mode of doing it.

COMMON SCHOOL LIBRARIES.

Governor Marcy, in his late message, recommends a more efficient mode of establishing common school libraries, viz. to devote a small sum to each district which will raise by taxation an equal amount for the establishment of a district library. We like the proposition for establishing district libraries; but we do not like the proposed mode of carrying it out. If these libraries are useful, which no sensible man, we believe, doubts, they ought to be not only general, but select. To ensure the first, it is only necessary to provide by law, that a certain per cent of the annual gratuity to each district shall be paid in books, instead of cash. By this provision fifty per cent may be saved in the purchase of the books, if, in the second place, provision is made to procure books of established usefulness, adapted to our institutions, and the ordinary wants and business of life. Agriculture and the mechanic arts constitute the employment of most of our population. Were some of the elementary works which instruct in these primary branches of labor, as well as those which inculcate the social and moral duties, made to constitute a part of *every* district library, the public could not be sufferers, nor could any individual with any propriety complain. We repeat, that by the state becoming the purchaser of all the books required for the *ten thousand three hundred and forty districts*, fifty per cent might be saved in the cost, a uniform and useful system would be established; and selections might be made eminently calculated to promote the great objects of society.

SCIENCE OF AGRICULTURE.

The great bar to agricultural improvement, is the degrading idea, which too many entertain, that every thing denominated science, is either useless in husbandry, or beyond the reach of the farmer; whereas the truth is, much, very much that is useful, is attainable by those advanced in life, and almost any thing by the young, who will adopt the proper means to obtain it. What is science? Johnson defines it—"Knowledge; certainty grounded on demonstration; art attained by precept, or built on principles." The adventurous mariner will tell you, that it is science which enables him to traverse every clime, and every sea, with facility and comparative security. Science has contributed essentially to improve every art and branch of industry which administers to the wants of man. It makes us acquainted with the nature of vegetables, of animals, minerals, mixed bodies; of the atmosphere, of water, of heat and light, as connected with agriculture; of agricultural implements and other mechanical agents, and of agricultural operations and processes. Established practices may be imitated by the merest dolt; but unless he is instructed in the reasons upon which these practices are founded, he can seldom change or improve them.

Intellect is the gift of the Creator; talent is the fruit of culture. The certain way of obtaining knowledge in science, is to be impressed with the necessity of possessing it, in order to prosecute one's business to better advantage. "All may not acquire by the same degree of labor or study, the same degree of eminence; but any man by labor may attain a knowledge of most all that is already known in his particular business." Great men spring from no particular class; they rise from the humble as well as from the higher ranks of life. Franklin was a printer, Washington a farmer, Sherman a shoemaker, the elder Adams a schoolmaster; Rittenhouse a ploughman; Ferguson a shepherd, Herschell a musician—and these all shone conspicuous as philosophers or statesmen. All young men who wish to become respectable, or to excell in agriculture, should be impressed with the necessity of obtaining knowledge in the science of agriculture, i. e. of knowing *how* things are *best* done, and *why*, being so done, they are the best done;—should resolve to obtain this knowledge;—and these two things being premised, there is little doubt of success, at least to a respectable and highly gratifying extent: For "knowledge, like wealth and power, begets the love of itself, and rapidly increases the thirst of accumulation." Science is not the Calypso, but the Mentor of agriculture—the stimulant to prudence and industry, rather than a lure to indolence and sloth.

A timely hint in regard to Sheep.—At this season of the year many sheep die,—not for want of food—but from causes unknown. Sheep, in their natural state, pick up green or succulent food, and have access to the ground, at all times of the year. In our artificial mode of managing them, we deny them the privilege which nature intended: we confine and keep them upon dry food, one-third of the year—and they become diseased,—and die—for the want, we apprehend, of green and succulent food. Those farmers who can feed roots at this season, should do so; but those who cannot, or even if they can, may prevent disease, by following Chancellor Livingston's practice (Essay on Sheep, p. 83,) of giving them pine or hemlock boughs; or Mr. Vanderlyn's, of giving them access to clay, both of which correct the acidity of the stomach, and afford relief. During deep snows, says Mr. L. bring the branches of cedar, pine, hemlock, or other bushes, that rise above the snow, to your fold yard, or beat a path that your sheep may go to them. If not on the farm, he directs to smear tar on boards, and sprinkle them lightly with salt, and lay them so as the sheep may get them; by eating it their bodies will be kept open, and themselves in heart.

MISTAKEN NOTIONS OF AGRICULURAL EMPLOYMENT.

A worthy young gentleman remarked to us the other day, that he had often regretted the Cultivator had not been established four years earlier than it was—for then, said he, "I should have learned, in time, what that has taught me, but which I did not know before, viz. *that farming may not only be made profitable, but respectable.*" The truth is, the young gentleman had returned, from studying a learned profession, to the management of his paternal estate, under an impression, but too common, that the cultivation of the soil was rather a menial and unprofitable employment, beneath the care of a *gentleman*, and which neither required talent, nor conferred honor. This error in opinion led to error in action—he went into speculation. The lessons of the Cultivator, he assured us, had changed his opinion, in regard to rural matters, and in time too, we are happy to add, to save him, not from loss, but from ruin.

This underrating the business of farming, has led to much individual distress, and contributed not a little to the late pecuniary embarrassments of the country. The business of agriculture has *not* been properly appreciated, either by the people or the government, and we do not know of any more in fault than the farmers themselves. There is no business that is so indispensable to human happiness—none that gives a greater scope to useful study—none that contributes more to the development of the noblest faculties of our nature—or that tends more surely to secure the substantial enjoyments of life, to individuals and to the state—than the cultivation of the soil. And yet, such is the strange fatuity of our nature, that we do nothing to encourage, to enlighten, or to elevate it, above the lowest employments in life—any further than we are impelled by our immediate wants.

A correspondent, whose letter is post marked Royalton, Vt. and who we suspect is some young farmer that has been jilted by his sweetheart, complains to us bitterly, that the girls prefer the butterflies of the day, to the industrious bees, who toil upon the farm; and that this their partiality for exterior show, drives many a young man to *fashionable* pursuits in order to secure their smiles—and he imploringly solicits our aid to lessen the evil. We may *help*, but the young farmers can alone *cure* the evil. Let them store their minds with useful knowledge—polish their manners, by an ingenuous and civil deportment—economize the fruits of their labor—and if all these will not win the smiles of the favorite fair ones—why then—let them alone; and search for others who *will* appreciate merit—and who can make your butter and mend your stockings.

But after all, there is much truth in the intimation of our correspondent. Thousands of young men do annually forsake the plough, and the honest profession of their fathers, if not to win the fair, at least from an opinion, too often confirmed by mistaken parents, that agriculture is not the road to wealth, to honor, nor to happiness. And such will continue to be the case, until our agriculturists become qualified to assume that rank in society to which the importance of their calling, and their numbers, entitle them, and which intelligence and self-respect can alone give them. Knowledge and virtue impart dignity to the profession, as well as to the man. Therefore get wisdom—get knowledge.

PEAT EARTH AND PEAT ASHES.

The character and name of this earth varies in different countries, as well as the speculations of writers as to its origin. The mosses of Scotland, the bogs of Ireland, and the fens of England, are but different names for flat wet grounds, of greater or less extent, corresponding in general character with what we here denominate swamps and marshes. Some writers consider those of Europe antideluvian, and composed of primitive earth. Others consider them vegetable matters, which grow and increase till they swallow up and destroy all other soils. Others, again, that they are composed of ligneous and aquatic plants, brought into action by the destruction of extensive forests, which abounded there in former times. However these speculations may apply to Great Britain and Ireland, it is pretty evident that what we denominate peaty and swampy earths, have generally originated from the accumulation of vegetable matters brought from the surrounding forests, during the lapse of ages, through the agency of water, and of lignious and aquatic plants, which have successively grown upon the ground, perished, and undergone a greater or less decomposition. Many of our swamps have undoubtedly once been the sites of lakes or ponds, which, in the process of time, have become filled with alluvial matters to the level of their outlet, and have afterwards become clothed with vegetation—first with marsh herbage, and afterwards, in many cases, with forest timber.

These soils have, however, been divided into classes, differing not only in the decomposition which they have undergone, but in the foreign matters which they contain; and requiring somewhat a different mode of treatment. Thus they are denominated fibrous, compact, bituminous, calcareous, i. e. abounding in lime or gypsum, sandy or clayey, &c.

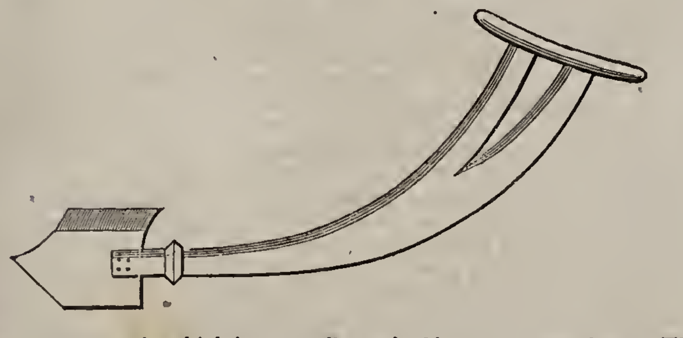
Having in our last described the modes of profitably applying peat earth to increase the fertility of uplands, we now proceed to give directions for rendering peaty grounds productive and profitable, by

PARING AND BURNING.

Thorough draining is the first and an indispensable requisite. An excess of water has in a great measure caused the accumulation of vegetable matter, by retarding decomposition; and the soil cannot be rendered fertile in wholesome products till this cause of infertility is removed. This operation will alone induce fertility where there is much clay and sand blended in the soil, or where the peaty matter is so superficial as to be mixed with the subsoil by the plough. In other cases, a top-dressing of caustic lime, particularly where the peat is feruginous, or abounding in iron, harrowed or ploughed in with a light furrow, will bring on fermentation and induce great fertility. But in most cases the surface of swamps and marshes consists of a coarse, tough net work of the roots of bogs and other marsh plants, which it is difficult to manage or subdue. In this case the most approved practice is, after the bogs have been cut up and removed, to plough or pare the surface, and when sufficiently dry to burn it, and to spread the ashes over the ground. At this juncture either the lime or manure may be applied with great benefit, in aid of the peat ashes, to bring on fermentation, and induce fertility. Where the plough can be used, it is to be preferred; and the furrows should be lapped, so as to give the greatest effect to the drying influence of the sun and winds. Where the ground is not sufficiently firm to bear a team, resort may be had to the common European mode of paring the surface, with the breast plough, which is effected by manual power. Where the plough is employed, it is sometimes passed also crosswise, to cut the sods into squares. And it is proper, whatever instrument be employed, to go to the depth of the sod, or roots. The ploughing or paring ought to be done before August, that the sods may be sufficiently dry to burn in that month or early in September.

In performing the operation of paring by manual power, the common bog hoe, or paring-mattock, with a broad edge, is used for bogs, bushes, or tough sod, while the breast plough (fig. 48,) is the principal implement otherwise employed, which is generally pushed by the breast of man. The blade of this implement is described in British Husbandry as “about thirteen inches long, terminating in a broad angular point. On the left hand side of the tool, there is a small edge, turned up like a coulter, which cuts the furrow in straight lines. The parts which form the blade, or share and coulter, are both of one thin plate, which is required to be of good metal, as the instrument must be kept extremely sharp. The flat, or sharp part, is somewhat more than a foot broad at its insertion with the handle; the coulter is turned so that it stands right up when the share is flat upon the ground, and cuts the edge of the turf as the share does the bottom. The shaft is of wood, made with a considerable curve upwards, and it is about seven feet in length; at the upper end of which is placed a hilt about two feet long, not thicker than a man can conveniently grasp with either hand, and by which he guides it. It is thus pushed forward, cutting the surface of the land as thinly as it is possible to do it, taking care, however, that no herbage is left uncut upon the pared ground, and when in pieces of about a couple of feet in length, it is turned over on the right side by a wrench of the spade, given by the workman; by which means the turf lies hollow, and the ground shows that the whole face of the land has been cut clean. The sods, when turned over, should be laid with the best possible exposure to the sun and air, in order that they may dry, which requires two, and sometimes three weeks, according to the state of the weather and the nature of the turf.”

Fig. 48.



The great points to be aimed at in burning are, to have the combustion progress slowly, to exclude the air wholly from the fire, and completely to burn all the sods. With this view the piles are made of different sizes, from four to twenty-four cart-loads each; the centre is made to contain brush, or other readily combustile material, and when the fire is well established here, all the apertures are closed, and fresh sods are added as circumstances warrant, till the whole is expended. In most of our swamps there are large stumps, which, if dry, form excellent centres for a turf heap; and piles of roots or brush may be used advantageously for the purpose; but in both cases great care will be required to keep the air from the fire, by piling on fresh sods, lest the fire get vent, and thus impair the value of the ashes.

Curwin thus describes the operation of paring and burning in Ireland: “Round a space from six to ten feet in diameter, a trench of a foot deep, and of the same width, is dug, the soil of which is laid on the adjoining surface of equal breadth. Beyond this another circle of sods is taken out, and laid to dry in the same manner; and thus the work proceeds, till the quantity dug, with that which is left undisturbed for a floor, is as much as can be properly burnt on the space in the centre. As soon as the sods are sufficiently dry, they are gathered together, the heap is set on fire, and additions are made of wet and dry sods from time to time, so as to keep a regular, moderate, and smothered fire, in proportion to the attention paid to which particulars, the husbandman is rewarded by the quantity of potatoes he will procure.”

The quantity and quality of the ashes vary, according to the quality of the peat earth and the care in burning. The quantity has amounted to 2,000 to 2,400 bushels on an acre. On analysis they are found to contain considerable carbonate of lime and gypsum. The expense in Great Britain varies from 1*l.* to 3*l.* per acre, say equivalent to $4.50 to $13 the acre.

The ultimate object in reclaiming peaty or swampy soils, should be, after they have been suitably prepared by a few tillage crops, to improve them as grass lands. The tillage crops employed to bring them into good condition, are oats, potatoes, turnips, rye, carrots, clover, &c. and the seeds proper for meadow and pasture, timothy, herds-grass, (red-top,) clover, &c. Several indigenous grasses, particularly of the agrostis family, will come in natually. These grounds should be preserved in grass so long as they yield a fair return. When they cease to do this, they should be again subjected to the plough for two or three years, and then stocked anew. We have the authority of Sir John Sinclair, for saying, that by suffering the second crop of grass to rot upon the ground, that is, neither to cut nor feed it off, an immense product of hay is insured for the succeeding year, and that swamp land may thus be made a perpetual hay meadow; and that this important fact has been corroborated by experiments which have been made in Flanders, where the same effect has been produced, by leaving the second crop on the ground every second or third year; the grass produced the succeding year being of extraordinary length. This result would no doubt be facilitated with us by the addition of gypsum, in the spring, upon the old fog.

We close this article with the following, given in British Husbandry, as a summary of the best practice:

“ 1stly. To drain the land perfectly, and to lay it dry, before commencing the operation.

“ 2dly. To regulate the depth of the paring by the nature of the turf, and the thickness of the mat of coarse sward.

“ 3dly. To burn the turf slowly, but completely, so as to reduce the whole to ashes; yet carefully to guard against allowing the fire to take such hold of the ground under the heaps, as to harden it into pits.

“ 4thly. To spread the ashes upon a shallow ploughing, and as fresh as possible—even hot; as they operate more powerfully in a caustic state than afterwards.

“ 5thly. To mix lime in a moderate proportion with the ashes.

“ 6thly. To sow the seeds as promptly as may be convenient after the ashes have been spread and ploughed in.

“ 7thly. To commence the cultivation—if the time of the year and other circumstances will permit,—with turnips or cole—but if oats or barley be taken as a first crop, to follow it with two successive green crops; and never to sow wheat until the land be brought into a fine tilth, and perfectly clean.

“ 8thly. To apply the whole of the manure produced by the crops to the ground, and to manage it, generally, in the usual course of regularly cultivated arable land.”

Although the above rules are intended to apply particularly to paring and burning upon uplands, they are nevertheless generally applicable to peaty soils.

HEDGES—OR LIVE FENCES.

3. PREPARATION OF THE GROUND AND PLANTING.

The ground on which it is desired to grow a hedge must be made dry, except when alders and birch are intended for hedge plants. In Great Britain, whose climate is humid and cool, it is the general practice to plant hawthorn hedges in the face of a ditch, the earth from which is thrown upon one side, and forms a bank. The plants are laid in a horizontal posture a little above the natural surface. In our comparatively warm and dry climate this mode of planting does not seem to prosper so well. The hedge is too sensitive to drought, and the plants sometimes lose their foliage, or cease to grow, long before the arrival of autumn. They are besides more liable to injury from the severe cold of winter, than when growing on a horizontal surface. We deem it the best mode to manure, and till the ground intended as the site of a hedge, with potatoes, or other root crops, the year before it is planted, in order to render it rich, mellow and clean, that the plants may obtain a vigorous start in the outset. The hedge may be planted in either autumn or spring. The way to proceed in planting is, to draw a cord on the line designed to be planted, and to open a trench with the spade, deep enough and broad enough freely to admit the roots of the plants, preserving a perpendicular side next to the cord. The plants being sorted into parcels of equal size, one person takes them, and beginning at one end, sets them at proper intervals into the trench, the heel of the plant to the perpendicular side, and another throws in earth to fix them in their position. Having gone through in this way, the plants are set up straight, the earth trod firm around them, and the trench filled up. The distance between the plants will depend upon their size and habits. If a double hedge is required, a second trench is made parallel with the first, at ten or twelve inches distance, or the first trench is made of this width, with two perpendicular sides, against which the two rows are planted, the plants in one being opposite the intervals in the other, otherwise in quincunx form. Weeds must be kept down by the hoe.

4. MANAGEMENT OF THE HEDGE.

The first requisite to success, is a determination to persevere, in despite of the labor and care which are to be put in requisition. The hedge must be well taken care of for at least the three coming years, or all the preparatory labor will be lost. If it is not kept clean, the cattle prevented from injuring it, and not duly clipped, it were better not begun. Besides these labors, it is necessary, in order to have an efficient fence, to fill all vacancies occasioned by plants not growing the first year, or by such as are stunted in their growth, with new and vigorous ones, of which a stock should be kept in reserve for this purpose. The labor of doing all this is not great; but it is the novelty of the employment, and the want of a due consideration of its importance, that is apt to induce us to procrastinate and neglect it. The hedge should be twice cleaned in a season with the hoe, and clipped once in a season, as soon as it throws out laterals, or limbs, of any size.

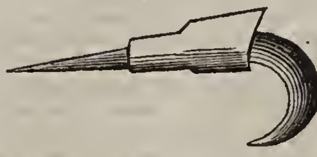
There are various modes of training a hedge, according to the fancy of the proprietor, or the nature of the hedge plant. Sometimes the sides are clipped perpendicularly, and the top flat and broad. At other times the plants are splashed, that is, cut partly off near the ground, and bent over and trained in a sloping direction; and at other times the tops are bent down and trained in a horizontal direction. This last mode we have practised with the honey locust, and it would serve well for the elm or white birch. The plants of the beech are trained alternately to the right and left, so as to form a close lattice work, and tied together where they cross, and where they ultimately become united and grow together. But the mode of training generally recommended and practised, particularly with the thorn, is to train them with a broad base, tapering to a point at top. To do this the clipping is commenced when the plants are small, and repeated every season, leaving a couple of inches of the new growth upon each side, and cutting off no more of the main stem, until the hedge has attained a proper heighth, than is necessary to give strength and firmness to the fence. Managed in this way, when the hedge has attained the heighth of five feet, the base will be from three to four feet broad, with a gradual taper, on each side, to the crown. The clipping is generally performed in June, when the new growth is tender; and the operation is best performed with a bill hook, a figure and description of which were given in vol. ii, page 178, of the Cultivator. The young hedge must be either protected from cattle by a dead fence, or cattle must be kept from the enclosure when the plants are in leaf, and the branches tender.

When a hedge becomes defective, either from stunted growth, or neglect in attending to it, it should be all cut down to within a few inches of the ground, in the fall or spring, and its formation in this way began anew. Gaps, occasioned by the death of plants, may be repaired by plashing, that is, bending into it the plants on the side, and these, or branches, may be layered in the space so as to take root.

One of the most successful cultivators of live fence in the union, we believe is Caleb Kirk, of the state of Delaware He cultivates the Maryland or New-Castle thorn, and practices plashing. By the bye, the seeds of this thorn may be obtained in New-Castle, Del. at about a dollar a bushel, and the quicks at Wilmington and Philadelphia, at five dollars the thousand.

But of Caleb Kirk. He wrote several valuable numbers on the economy and mode of rearing live fences, twenty-seven years ago, which were published in the American Farmer. From these numbers we collate the following opinions of Mr. K.—That the thorn is the best plant for a live fence;—that the New-Castle, with a thick green serrated or indented leaf, is the strongest, and that the Virginia parsley-leaved is the best, giving the most sprouts when cut in or plashed;—that a walnut or cedar tree growing in the vicinity of a hedge, is sure to cause decline, and ultimate death in the part near to it;—that a hedge should have full benefit of sun and air;—that a hedge requires but three feet in breadth, and should be kept down to five or six feet in heighth;—that the haws, or seed, should be separated from the shell, as practised by Mr. Main, and that if they are then suffered to dry, early germination may afterwards be induced by soaking them in warm water a few hours, and then exposing them to frost, before they are put into the ground. Mr. Kirk experimented considerably, before he settled his mind as to the best plan. We will hereafter give his remarks on this subject entire, together with his drawings of his finished hedge, and a detailed estimate of its fair cost.

HEDGE BILL HOOK.—Fig. 49.



Referred to in Mr. Chiswell's communication in our last publication.

DOMESTIC FOWLS.

The raising of Poultry, although, superficially viewed, of comparative insignificance, is a branch of rural economy which may be made to contribute largely to the economy and comfort of a family, and not a little to the profits of the farm. Chickens and eggs—ducks, geese and turkies—may be classed among the innocent luxuries of life. They also always command a ready market, and a liberal price, in our cities and towns, to which may they be transported a great distance, at trifling expense, as their carriage is comparatively light. Eggs are now taken to our cities from a distance of one or two hundred miles, and poultry still further. Individuals who have entered into the business systematically, for the purpose of supplying the market, have found it a source of substantial profit, particularly when located near large towns or navigable streams. The outlay is trifling—a little land and a cheap structure for a poultry-house. The stock costs but little, and the attendance no great, as it can be principally given by the young or non-producing members of the family. To the farmer the cost is hardly any thing, but the extra food which is sometimes required during the winter months. Poultry will live upon what they can pick up of the offal of the garden and farm, at other seasons; and if they have access to a well stocked barn and cattle yard, they will even get along in winter; but with these means they will seldom become fat. Grain, roots, fruit, &c. are required to make poultry fat, as much as they are to make other animals so;—the economy of the business lies in procuring cheap nutritious food, and in feeding it out judiciously, and in providing proper shelter.

The commerce in eggs, in Great Britain, is very great. Besides those produced in Great Britain, the annual importations from France amount to 55,000,000, from Germany and the Netherlands to 17,000,000 more, while the importations of eggs from Ireland are stated to average 500*l*. (about $2,400) per day through the year. At the average price of ten cents a dozen, the importations from the continent amount to $600,000 a year. The average price in our cities and towns may be stated at fifteen to eighteen cents per dozen, and the amount annually paid by consumers, must exceed half a million of dollars per annum. At least an equal amount is consumed by those who raise the poultry; so that a million of dollars per annum is a low estimate for the value of the eggs annually consumed in our country. This gives an average of about six eggs to each individual of our population. So much for the consumption of eggs. As to the product of hens, and expense of keep, we will cite a case, which, although an extraordinary one, and above a fair average, will nevertheless serve to give some idea of the profits which may be made in the business. We quote from Mr. Mount. He received three pullets of the Poland breed, or top-knots, on the first of December, 1835, which had been hatched in June previous, and they commenced laying on the 15th December. The number of eggs which they laid between the first of December, 1835, and first December, 1836, was 524, or 174 and 175 each, and only one of them showed a desire to set. During the twelve months they consumed three bushels of barley, seventeen pounds of rice, and a small quantity of barley meal and peas, the cost of which, in England, amounted to 16*s*. 10*d*.=$3.71. The number of eggs being 524, there were thirty-one eggs produced for each shilling (24 cents) expended, assuming the weight of each egg to be one and one-fourth ounces, there would be forty-one pounds of food of the most nutritious kind, which it is possible to obtain at a cost of less than twelve and a half cents per pound, and which may be estimated at eighteen cents per pound. At the latter estimate, the profit on the eggs of each fowl, above its keep, would be $1.89. The barley fed to these fowls cost 4*s.* 9*d.*=to about ninety cents the bushel. Mowbray says the eggs of well fed hens will weigh from one and three-fourths ounces to three ounces each. Buffon says a hen well fed and attended, will produce upwards of 150 eggs in a year, besides two broods of chickens. The average of well fed fowls may be stated at ten dozen or one hundred and twenty.

But eggs are not the only source of profit to the poultry yard. Each hen may be presumed to raise a dozen chickens in a season. The market price of these may be stated to average twelve and a half cents per pound. The weight, and consequent value, will depend on the mode in which they are fattened. They ordinarily weigh two, and may be made to weigh six pounds. The quantity consumed is very great. They are brought to our towns in great quantities by vessels, steam-boats and wagons, during all the autumn and winter months, and often sold at five to ten shillings a pair. The price in the London market has been as high as $4 a pair. The receipts for eggs and pullets, of farmers and others who raise gallinaceous fowls, in the United States, constitute so large an item, in the aggregate of farm profits, as to warrant us in devoting a column or two of the Cultivator to the management of the poultry yard.

VARIETIES.—The varieties most in esteem are the common dung-hill fowls,—game—Dorking—Poland—Bantam—Chittagong, &c. The first require no description. The plumage of the *Game* breed is particularly rich; their size somewhat below the common; their form and symmetry perfect; their flesh white, and superior to that of other breeds for richness and delicacy of flavor; but there is a great difficulty in raising the chickens, from their natural pugnacity of disposition, which shows itself at the earliest possible period. The *Dorking* fowl (the name from a town in England) is the largest variety of the species. It is handsome; legs short, with two claws on each foot; eggs large and lay abundantly; color of the flesh inclining to yellowish or ivory. *Poland fowl*, a shining black, with a white tuft of feathers on the head of both cock and hen; their form plump and deep, legs short with five claws; lay abundantly; are less inclined to set than any other breed; fatten quickly, and are more juicy and rich than the Dorking. One of the most useful varieties. The *Bantam*, is a small breed, valued chiefly for its grotesque figure and delicate flesh. The *Chittagong*, or Malay hen, is the largest variety of the species; color striated yellow and dark brown, long necked, serpent headed and high upon the leg; flesh dark and coarse.

Yard and enclosures.—Upon farms the poultry yard may be small, as the poultry should generally be allowed to range over the straw yards and most parts of the premises, to pick up what cannot be got at by swine. The situation should be dry, and have a southern exposure. It should be supplied with some effete lime, and ashes or dry earth, in which the hens may exercise the propensity of rolling or bathing. This cleans them from vermin and impurities, promotes cuticular excretion, and materially assists in promoting health. The yard should connect with a poultry house, which, where there is not already an out-building adapted to this purpose, may be constructed so as to accommodate all kinds of domestic fowls, or dunghill fowls alone. When the intention is to raise poultry on a large scale, and of different kinds, "a space thirty by fifty feet may be made choice of for the buildings and yards; the building may be ranged along the north side, and the three other sides enclosed with a trellis or slatted, or wire fence, from six to eight feet in height, and subdivided with similar fences, according to the number of apartments. The hen house (*a*, fig. 50) and turkey house (*b*) may have their roos's (*c, c*) in part over the low houses for ducks (*d*) and geese, (*f, g, h*) and besides these there may be other apartments for hatching, or for newly hatched broods, for fattening, to serve as an hospital, or for retaining, boiling, and otherwise preparing food, killing poultry and other purposes. A flue may pass through the whole for moist or very severe weather; and the windows ought to have outward shutters, both for excluding excessive heat and excessive cold. In every apartment there ought to be a window opposite to the door, in order to create a thorough draft, when both are opened, and also a valve in the roof, to admit the escape of the hottest and lightest air. Every door ought to have a small opening at the bottom, for the admission of the fowls when the door is shut. The elevation should be a simple style, and there may be a pigeonry over the centre building. The roost is sometimes a mere floor or loft, to which the birds fly up or ascend by a ladder; at other times it is nothing more than the coupling timbers of the roof, or a series of cross battens or rods, rising in gradation from the floor to the roof. The battens should be placed at such a distance horizontally as that the birds, when roosting, may not incommode each other by their droppings. For this purpose they should be a foot apart for hens, and eighteen inches apart for turkies. The slope of the roost may be about 45°, and the lower part should lift up by hinges in order to permit a person to remove the dung. No flying is requisite in case of such a roost, as the birds ascend and descend by steps, see figure 51, in which (*a, b*) are spars for the poultry to sit on (*c, c,*) ranges of boxes for nests, (*d*) the roof, (*e*) the door, which should be nearly as high as the ceiling, for ventilation, and should have a small opening with a shutter at bottom, to permit the poultry to go in and out at pleasure. The spars on which the clawed birds are to roost, should not be round and smooth, but roundish and roughish like the branch of the tree."—*Moubray.*

Fig. 50.

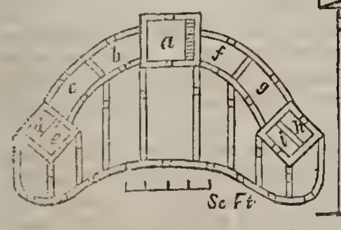
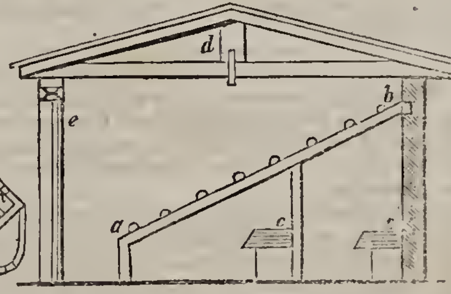


Fig. 51.



Choice and treatment of breeding stock.—Two year old stock are preferred for producing and rearing chickens. Hens are in their prime at three, and decline at five. There should be one cock to four or six hens, though one to ten is allowable. Nests should be of short soft straw, otherwise the hen, on leaving her nest, will be liable to draw it out with her claws, and with it the eggs. From nine to fifteen eggs are placed under a sitting hen. If the eggs are marked with a pen and ink, any fresh ones which may be deposited may be detected and withdrawn. While moulting, or casting and renewing of feathers, which with its effects lasts from one to three months, hens do not lay; nor is poultry, during this period, deemed fit for the table. It is recommended to feed setting hens on the nest.

To preserve eggs.—Eggs become desiccated, and lose much of their nutritive property, in keeping, by the access of atmospheric air through the pores of the shell. To prevent this deterioration it has been found effectual to place the eggs in water saturated with lime and a little salt. The directions are, to take one bushel of quick lime, thirty-two ounces of salt, and eight ounces of cream tartar, and mix them in a tub of water. The liquid will be of such consistence as to cause an egg put into it to swim with its top just above the liquid. The eggs may be kept perfectly sound in this for at least two years.

The product in eggs will depend upon the quantity and quality of food, and upon the birds being kept warm and comfortable in winter. Hens, well treated, will lay most of the year, except when moulting, or setting and nursing the young brood. The French excel in promoting fecundity in the hen, particularly in winter, when eggs command the best price. They keep their fowls *warm*, and give them very stimulating food, as barley boiled and fed warm, curds, buckwheat, parsley and other herbs chopped fine, as also leeks, apples, pears, cabbages, &c. chopped fine—and oats and wheat.

Feeding and fattening for market.—Upon the manner and economy of doing this depends the profits of the business. It has been estimated that chickens may be reared and fattened at six cents a pound, where the food is all to be purchased. The sooner this food is transmuted into fowl, after the chicken has attained a marketable growth, the better. On the farm, poultry do much towards providing for themselves, and they only require extra food and attention for a short period before they are designed to be sold. For fattening, all the coarse grains may be put in requisition, as may potatoes and apples, chopped fine and given raw, or boiled. There is manifest economy in cracking the grain, and in cooking most of their food. Warm and dry shelter, in cold weather, is as favorable to the fattening process, as it is to the fecundity of the hen. The hen house and yard before described, is well adapted to fattening fowls—as they will not brook closer confinement, without pining, and require a pure air, and access to the earth. They require sandy gravel, and troughs for both water and food. Moubray thinks there is economy in feeding fowls with the best and heaviest grain, not only as it increases them faster in flesh, but nearly doubles the size and value of their eggs. There is probably nothing better, in the fattening process, than Indian meal, cooked or raw—and an alternation of this with roots might be found salutary. The farmer may, however, with propriety consult his stores, and fatten his poultry upon what he can best spare, whether of grain, fruits or vegetables; though during the autumn and early winter months, we doubt whether any food will be found more economical than apples and potatoes, blended with a due proportion of meal and grain. A writer in the American Farmer recommends cracked Indian corn, Indian meal or mush, with raw potatoes cut into small pieces not larger than a filbert, and that charcoal, broken into small pieces, be placed within their reach; and he alleges, that by this method fowls will fatten in one-half the usual time, and with much less expense. Molasses, or other saccharine substance, mixed with the food of poultry, is said greatly to facilitate the fattening process. Sussex, England, is famed for its fat fowls. The food given there is ground oats, made into gruel, mixed with hog's grease, sugar, hot liquor and milk; or ground oats, treacle and suet, sheeps' plucks, &c. With this the fowls are crammed morning and night. They are fattened in a fortnight, often weigh seven to ten, and average five pounds. In Workingham, fowls are confined in a dark place, and crammed with paste made of barley-meal, mutton suet, treacle or coarse sugar, and milk, and they are ripe in a fortnight. The London poulterers coop up fowls, and make them fat in a fortnight, using much grease in the food. Neither of the three last modes are deemed proper, as regards the appearance, flavor or healthiness of poultry which they fatten.

We have confined our remarks to dung-hill fowls, and may hereafter extend them to other species of fowls that are raised upon the farm.

HINTS FOR THE PIGGERY.

Winter store keep.—Roots of all kinds, if boiled the better, excepting perhaps carrots, parsnips, mangold wurtzel and ruta baga, which will agree well in a raw state; cabbage, peasand beans, or other corn, the run of the barn yards and wash.—*Lawrence.* The economy of raising roots for the winter keep of pigs is very great, and the subject is particularly deserving the attention of the American farmer. An acre of land will give, if well attended, 600 bushels of mangold wurtzel, ruta baga, carrots or parsnips. This will keep ten pigs 120 days, giving to each a peck per diem; but where they receive the kitchen wash, and the otherwise waste food of the farm, half this quantity will suffice to keep store pigs in a thriving condition. The four quarts of roots may be considered equivalent to a quart of corn. Upon this calculation one acre of roots well go as far as four acres of corn, yielding 40 bushels the acre, in feeding winter pigs; and, estimating the corn at one dollar, and the roots at twenty-five cents per bushel, are worth about four times as much in market. It affords us pleasure to be able to say, that our root culture has been enlarged very considerably during the last season, and that nearly every person who has gone into the culture has been so pleased with the result, that he he resolved to extend it hereafter.

Fatting.—A hog will fatten best by himself, at any rate the fewer the better; and it is most conducive to their thriving that they have room in their styes. They must be ringed, must be dry, and enjoy that degree of warmth which will render them entirely comfortable, the demonstration of which is, that they lie upon their side and extended. When the hog lies upon his belly and contracted, it indicates a sense of cold, or some indisposition. If inaptitude to thrive be attributed to a foul, scurvy or obstructed hide, the best remedy is to extend the hog upon a form, and wetting him with lye made by boiling half a peck of wood ashes in urine, or salted water, to curry and scrub him clean; then to wash him in clean water, and wipe him with a wisp, strewing him over with ashes, and putting him into a deep straw bed. The method of pig feeding, to profit, is, to begin with inferior victuals, if any difference be proposed in that respect; to feed moderately during the first fortnight, or longer if the animals be weak and low in condition, and never throughout the whole period, to overburthen their stomachs, but rather to keep the appetite keen, and the troughs constantly empty, except at meal times, which should be three times a day. The pigs having gorged themselves, and blunted their appetite, give to each two table spoonfuls of sulphur once or twice a day, or in cases of great heat, equal parts of cream of tartar and nitre, and in a day or two they will recover.—*Lawrence.*

Winter wheat may be sown in the spring.—So says Mr. Low, professor of agriculture in the Edinburgh university. "If it is sown in spring, it is termed spring-wheat; if previous to winter, summer or winter wheat." By being sown in spring, it changes its habit with relation to the period of ripening. "The produce of wheat sown in the spring acquires the habit of ripening earlier than wheat sown in autumn. This change in the habit of ripening takes place in the case of all the cerelia, and many other cultivated plants."

FARMERS CLUBS.

In view of the facts, which must be palpable to all, that our general system of husbandry has been bad—and that it continues to be one of exhaustion to our soils—and that we CAN and OUGHT to improve it—and as a very efficient means of bringing about the desired change,—we would respectfully propose, that the farmers in agricultural districts form clubs, or associations, for mutual and general improvement;—that they become subscribers, in their associate capacity, for at least half a dozen agricultural periodicals, independent of those taken by the members individually; that the members meet monthly, or oftener, during the winter months, to read and discuss the matters of interest which these journals contain, and of their individual practice; and that no topic, foreign to agricultural improvement, be permitted to intrude upon these meetings.

The reason for taking several journals, is, that they may increase the stock of useful knowledge, or what may truly be denominated their farming capital. The writings upon agricultural improvement, and particularly the communications of practical farmers—have become so numerous, that the same articles are seldom published in more than one or two agricultural papers. The reason for taking them in their associate capacity, and exclusive of their individual subscriptions, is, that the latter should be carefully preserved, bound, and kept in the family. They will be worth more, for future reference and use, for the boys who are to become men, than they will cost; and if they are taken to the club-room they are liable to be soiled or lost.

Among other advantages which would result from the establishment of these clubs or associations, we may enumerate the following:

1. *They would improve the soil and the mind.*—They would not only become a means of publishing to all, all that might be found excellent in the practice of each member, but they would advertise all that should be found new and useful in the practice of the entire agricultural community. They would serve to demonstrate errors in practice, where such existed, explain the causes, and teach the remedies. They would instruct in the principles upon which improvements *could be made*, and teach the practise by which they *had been made* by others. They would elicit new thoughts, develope new capacities, excite new emulation, and beget self-respect, and a desire to be useful, in the members themselves. Practice is as essential to improvement in the functions of the mind, as it is in those of the body in the arts of labor. The flint gives fire only when it is brought in collision with its kindred steel. So the collision of intellect, in the search after truth, most effectually developes its latent powers. Motion gives purity to water; if suffered to rest, it putrifies, and taints and poisons the atmosphere. So the mind can only exert its primary office of doing good, by being trained to wholesome exercise.

2. *They would be schools of instruction to the young*, particularly to those who are about assuming the *toga*, or garb of manhood, and who look to their seniors for examples of wisdom and prudence. The information which these meetings would furnish, would serve to expand the young mind, to stock it with seeds of usefulness, to teach it modes of useful culture, and to ensure a harvest of usefulness—to graduate its desires, and to avert its chimerical wanderings.

3. *They would improve the social and moral condition of their neighborhoods.*—Men habitually coming together, to receive or impart instruction, and to discuss matters of common interest to them all, can hardly fail to feel the benign influence of the social virtues, or to cultivate and inculcate them. And as these associations would tend to excite laudable competition and useful industry, they would diminish the measure of indolence, and of vice, its natural concomitant.

What we have mentioned, under the three preceding heads, as we observed, are but a part of the benefits which would result from agricultural associations. They already exist, under the names of lyceums, to a considerable extent, in the New-England states, and in Pennsylvania. But we doubt whether their benefits are so palpable as they would be, if, in the outset, the attention of their members was directed more particularly to practical improvement, by the reading and discussing the contents of our agricultural periodicals. Lectures on the sciences connected with agriculture are important as auxiliaries in the work of improvement; cabinets of mineralogical specimens may be collecting with a view to ultimate benefit; but the agricultural community are not yet enlightened enough upon these subjects to appreciate their value, or to listen to, or study them, with that interest, or with that profit which we hope and believe they will ere long excite and impart.

That the preceding remarks may not be imputed to mercenary considerations on our part; and to give an evidence of our desire to encourage the formation of the associations we recommend—we make this offer—to send the Cultivator, gratuitously, to every association of this kind, which shall be organized in the union, during the current year—the evidence of which organization shall be a certificate from the post-master of the neighborhood—with the addition, that at least six other agricultural journals have been subscribed and *paid for*, by the association. And we ask the liberty to recommend, that one of the six be the *Farmer's Register*, published at Petersburgh, Va. by E. Ruffin, because this is of a higher character, and perhaps of a more durable form, than any other published in the country.

OLDEN TIMES—1792.

We omitted to notice, in its order in the Memoirs of the old agricultural society, a communication from Chancellor Livingston, *on the excretory duct of the feet of sheep*, seemingly designed to subserve a beneficial purpose, and at that time but partially known to farmers, and not noticed by naturalists.

"The legs of sheep," says the Chancellor, "are furnished with a duct, which terminates in the fissure of the hoof; from which, when the animal is in health, there is secreted a white fluid, but when sickly, these ducts are stopped by the hardness of the fluid. I have in some instances found, that the sheep were relieved, merely by pressing out the hardened matter with the finger, from the orifice of the duct in each foot; perhaps it may in some cases be proper to place their feet in warm water, or to use a probe, or hard brush, for cleansing this passage."

It is now a received opinion, that the stoppage of these ducts, in the legs of sheep, by mud or dung, is a prolific cause of sickness, and that they ought to be carefully examined and opened on the first appearance of indisposition, inasmuch as the obstruction often causes inflammation.

In 1799, the annual address was delivered before the society by the late Simeon De Witt. We extract so much of this address as relates to rotation of crops, and to improvements in our grain, fruit and cattle. The reader will find his time well employed in the perusal.

ROTATION OF CROPS.

"It is an observation universally known, that the ground on which flax has been raised, is not fit for the same use till after an interval of several years. With the physical cause of this phenomenon we are yet unacquainted, and perhaps will remain so for ever. But although the arcana of nature lie far beyond our comprehension, we may profit by attending to her operations; and we are allowed to frame theories, although demonstrations of their correspondence with realities surpass our capacities. I shall therefore venture to make a guess at the cause of the fact just mentioned.

"I will suppose that there are as many distinct principles, or combinations of principles, engaged as agents in the work of vegetation, as there are species and varieties of vegetables; that these have their residence in the atmosphere, and are capable of being absorbed, changed and regenerated by the earth, especially when by the labors of the husbandman it is bared and exposed to their influence. I will next suppose, that generally an equal quantity of these are imbibed and ready to administer to the rearing of any correspondent vegetable, whose seed may be deposited in the earth. If then only one kind of seed be sown on a given quantity of ground, it will exhaust that particular principle which nature has provided for its growth. This ground will then become unqualified for the raising of a similar crop, until time be given again to the soil to absorb from the air that principle which has been thus diminished in the quantity, which the soil has a tendency to receive, and the capacity to hold; in the mean time any other vegetable will there find its appropriate principle undiminished, and ready to do its office in raising it to maturity. What has been observed of flax, is supposed to be true, in some degree at least, as to most other cultivated annuals. Besides it is further supposed, I may say it is proved, that a crop of one kind, so far from unfitting, will rather qualify the earth the better for the production of another, if the succession be conducted as experience directs.

"If this theory then be admitted to be well founded, the advantages of rotations of crops can be sufficiently proved *a priori;* but there is no need of depending on persuasives of this kind; the experience of Europe, where necessity more eminently than in this country has become the mother of invention, has proved to the full conviction of all its practical farmers, that this is to be numbered among the best of modern improvements. A difference of climate and other circumstances does not present objections to our following them in this, that it does in other respects. I wish therefore to see my countrymen observing these rules in this particular with more exactitude."

IMPROVING OUR GRAIN, FRUIT AND CATTLE.

"That certain species of the productions of the earth may be improved as well as degenerated, experience and observation satisfactorily shew us. Wheat, rye, oats, barley, and maize, or Indian corn, are here mostly entitled to our attention. Can we improve the qualities of either of these? That we can is perhaps not an absolute certainty,—but while there is a probability let us not lose sight of it. If we reason from analogy, there is no cause of despair; and if it can be done, the value of the acquisition will be incalculable. I shall here make a remark, which if true, will be granted to be of some importance. It seems to be one of the laws of nature, that specific changes in vegetables, as well as animals, can be effected, but only by a slow and gradual process.* What at first is a mere accidental property, and not sensibly inheritable, may, by a repetition of impressions, from generation to generation, become at last confirmedly hereditary. That this is the case with regard to animals, many occurrences prove. Indeed we cannot in any other way rationally account for the varieties even of our own species, distinguished by color, size and other peculiarities, observed of nations, tribes and families. No one will pretend to say that such distinctions were brought about in a day or year: they must therefore be produced as has been asserted, by the continual and uniform action of their causes. The properties impressed on one generation being thus inherited in some degree by the next, which receiving additional and stronger impressions of the same kind from the same cause still operating, will transmit them still further with increased efficacy, till at last the effect is carried to its ultimate point.

"Such considerations will suggest to us the means of improving our varieties of grain. If they possess, like animals, the faculty of inheriting properties, of which there is little doubt, we should from year to year select the best for propagators, and from their produce again choose the best, and thus continue without intermission. By such means pursued for a length of time, it is more than probable we would accomplish the desired object; and who knows to what degree of perfection such things may be carried by unremitted application and care. The middle states of the union, of which New-York may be considered the chief, are without question not exceeded by any on the surface of the globe, as a country favorable to the raising of wheat. We have therefore nothing to apprehend from soil and climate, in opposition to our endeavors to bring it to the highest degree of perfection of which it is capable, and this being the most valuable production of the earth, we should spare no pains to improve it to the utmost possible pitch.

"Fruit, by which I mean what the word signifies, in its most common or limited sense, may be improved chiefly by making selections of the best kinds that occur, and preserving them by grafting, innoculation and other well known methods of obtaining the qualities of the parent vegetable undegenerated, if not meliorated, in its progeny. What valuable acquisitions lie within the range of possibilities, if we pay due attention to this article, may be aptly illustrated by simply pointing to simple occurrences. The Spitzenburgh apple, which may challenge the world to match it, was first discovered as an accidental production, in the neighborhood of this city; fortunately it fell into the hands of a man of taste, who made its superlative excellencies known to others, and gave perpetuity to its kind; but for this accident it most have again retreated into eternal oblivion. Its compeer, the Newtown Pippin, though not so exquisitely high flavored, yet perhaps superior in its ambrosial delicacy, is of so late an origin, that facts relative to the place and manner of its birth, are not yet obscured by the length and uncertainty of tradition. Other kinds, that sprung from American soil, and even from this state, need not shrink from a comparison with the best that Europe can offer. Among the infinite varieties of fruit of which the seed of the apple produces, how many that would enrich the choicest catalogue, must perish forever with the limbs that support them, merely for want of notice! It cannot therefore be improper to recommend to the members of this society to be observant of what nature does: she, like an indulgent mother, holds out to us her favors in every varied shape, as if intent on gratifying every eccentric whim, as well as all the innate appetites of her children, however innumerably diversified they may be; mixed with her coarser works frequently a jewel is to be found. Let us not then through mere inattention lose such invaluable prizes when thus gratuitously offered to us"

Mr. De Witt next adverts, in his address to the improvement of our stock, and the subject of live fences, and then to the utility of an experimental garden, or farm, as follows:

"The only way by which we can systematically and effectually do our business, is by establishing an experimental AGRICULTURAL GARDEN. This to us will be the same thing that a laboratory is to the chemist. He with his apparatus in his room has dissected earth, air and water, chased nature through all her intricate flights, and formerly deemed inscrutable mazes, penetrated to her secret hiding places, explored her dark recesses, unlocked her cabinets, rifled them of her richest jewels, and filled the treasury of science. What would he, or could he have done, if his dependance for information had been altogether, or chiefly, on the labors of others? It is to be presumed that a cloud of darkness would yet enshroud that most useful and delightful of sciences. In the same manner an agricultural garden, properly conducted, might be made a little representative, a miniature of the world, and furnish in a short space of time, more facts relative to the history, nature, disposition, constitution, laws, government and general economy of the republic of vegetables, than could by any practicable means be obtained from all America in a large portion of a century. Here exotics might be collected and naturalized, our wild indigenous plants tamed, and their useful qualities investigated, every mode of culture tried, and the best accurately ascertained,—experiments made of whatever promises fair in theory, or may lead to future discoveries, and proofs of all these exhibited to the eye, so that no one should have occasion to risk any thing by venturing on doubtful projects."

How much weight would be added to these considerations of utility, by combining with these experiments, *a school of practical instruction in the business of husbandry*, and enlarging the garden to a good sized farm? The practice of our farmers differ fifty to one hundred per cent on the score of profits. A school of practical instruction, connected with the experiments and with the science, could not fail to introduce the best models, and greatly to advance agricultural improvement.

The address closes with the following appeal in behalf of the society, and the great objects which it sought to promote:

"While millions heaped upon millions are expended to protect the interests of the small proportion of Americans who have chosen navigation as a trade, certainly a little bestowed, or even thrown away, with a good intent, for the promotion of agriculture, cannot be deemed a misapplication of money; so far from being considered a partial bounty, it would go some way to obviate the too justly grounded imputation, of an over strained bias in favor of commerce.

"And what other institution can there be conceived more deserving the patronage of a legislature than this? Has it any thing for its object that does not directly aim at the happiness of mankind? The lessening of labor, that first curse pronounced on man after the loss of his innocence, is its principal view. It aspires to the procuring of every enjoyment which the earth presented in the golden age, as sung by poets in strains the most enthusiastic and sublime. * * While passions like demons tear the breast of the politician, gnaw like vultures on his vitals, spread a gloom over his perspectives, and embitter his days, the heart of the philanthropist expands with a seraphic joy, bounds with godlike palpitations, and feels emotions of exstacy ineffably exquisite, as his eye roves over fields where the golden harvest luxuriantly waves to the wind; where every shrub and plant is loaded with dainties, where every tree bends under its fruit, and all things seem to invite us to partake of their bounties and be happy. If then these things are pure, uncontaminated fountains, whence human happiness flows, surely we cannot contemplate them with a stoical indifference; but as citizens, as Christians, and as legislators, must join our endeavors to cherish and support them."

---

* This has been satisfactorily demonstrated by Bakewell, Collins, Coke and others in cattle, by Van Mons in fruits, by Baden in maize or corn, &c. while Knight and others have effected a more speedy, and equally certain mode of change in fruits and vegetables, by artificial crosses of known varieties. Many of our garden productions have been thus artificially improved.—*Cond. Cult.*

OUR CANALS.

The following abstract, of the receipts and expenditures upon our canals, during the last year, is taken from the Annual Report of the Commissioners of the Canal Fund:

ERIE AND CHAMPLAIN CANALS.

Tolls and income on the Eric and Champlain Canals, deducting expenses of collection,		$1,426,071 78
Expenditures in repairs on do.	361,714 70	
Interest on canal debt,	163,779 70	
Towards enlarging Erie Canal,	691,103 10	
Sundry expenses,	26,333 13	
		$1,243,930 63
Leaving as nett revenue,		$182,141 15

LATERAL CANALS.

	Expenditures.	*Revenues.*	*Deficiencies.*
Oswego,	76,020 47	31,163 16	44,857 31
Cayuga and Seneca,	42,366 56	15,189 04	27,177 52
Chemung,	31,552 61	3,274 55	31,278 06
Crooked Lake,	12,146 02	822 48	11,323 51
Chenango,	107,705 05	4,955 89	102,759 16
Annual cost to the state,			$217,335 59

TWO RULES FOR PLOUGHMEN.

The breadth of the furrow-slice should correspond with its thickness, and be in the proportion of three broad to two deep. This is necessary in order that the furrow may be suitably and handsomely laid. If the depth is in greater proportion, the furrow-slice will not be turned over enough, and will be apt to rest on its edge; if it is less, the furrow-slice will be turned too far; for,

The furrow-slice should not be completely turned over, and laid flat, except where it is to be sown with grass seeds, but made to rest in a sloping position against a previous one. If flat, the soil is less pulverized, less permeable, more subject to be injured by water, than if laid sloping. In this way too the greatest surface is exposed to the atmosphere, which is calculated to ameliorate and mellow the soil. A stiff clay, or a tough sward, is but little benefitted by the plough, if laid flat. It soon becomes almost as compact as it was before it was turned over. The same takes place if the soil is wet, or heavy rains follow.

TESTIMONY IN FAVOR OF ITALIAN SPRING WHEAT.

A letter from Philip Reybold, near Delaware city, Del. says—"My son and myself obtained some Italian spring wheat of Mr. J. Hathaway last winter. I sowed six bushels, which yielded me about one hundred and twenty bushels, without manure. I merely ploughed up my stock field, as we do for oats, and sowed it. In the adjoining field, which I manured, and the chance being altogether better, my winter wheat was nearly all destroyed by the fly. I intend sowing all the spring wheat I have raised next spring."

Our correspondent is the gentleman, whose remarkable large crop of corn, and the mode of culture, were published in vol. iii, p. 34, of the Cultivator, and which may be profitably re-examined by the farmer who wishes to improve in the culture of this crop. A grass ley—plenty of long manure—deep ploughing—dressed with the harrow and cultivator only—harvested by cutting at the ground—product 2,216 bushels on twenty-two acres. Mr. Reybold and his sons raise about 20,000 bushels of corn annually. [☞ We embrace this mode of advising Mr. R. that six barrels of Dutton corn have been forwarded to him, agreeable to his request.]

A LESSON FROM FLEMISH HUSBANDRY.

The Flemings' house their clover hay when but partially cured, and alternate it in the mow, in layers of six or seven inches, with straw. The straw imbibes the nutritious juices of the clover, is rendered palatable and nutritious by them; consequently the clover does not heat, and the whole is converted into valuable fodder. Without being acquainted with this practice, we have twice or thrice treated our late crop of lucern in this way, after it had been partially cured in cock; and have thought it an excellent way to increase our fodder. The clover should be first freed from all extraneous moisture. It is the natural juices of the grass that enrich the straw.

Education in Austria.—A late British traveller, Strang, has given us a high opinion of education in Austria. He says, that in Austria proper, every child *must* go to school for a certain number of years, and that if the parents are not able to defray the expense, the education is gratuitous; that numerous normal or pattern schools furnish a supply of teaches; and that Vienna alone sends out from 1,600 to 2,000 teachers annually, from her normal schools. The peasantry of the Austrian states, this traveller assures us, enjoy a superiority in worldly prosperity, and in moral advancement, consequent upon the general system of instruction, over the same class in Great Britain. There is good ground for believing, that the mass of population in many of the German states, are better instructed, particularly in whatever conduces to success in their business, and to their moral deportment, than the mass of population of the free states of America. Such things should not be. They should not be worse, but we be better off.

ANSWERS TO CORRESPODDENTS.

LIME.

C. Butler, of Plymouth, Conn. is desirous of obtaining information as to the application of lime, and what quantity should be applied to the acre. There can be no general rules laid down in this matter. In Great Britain it is common to apply from 120 to 350 bushels, and sometimes even 600 bushels are given to the acre. The smallest quantity here named would destroy fertility in America, so far as experiments have been made. In Pennsylvania, where lime is in the greatest use for agricultural purposes, from 50 to 100 bushels are applied to the acre, the lesser quantity upon poor lands. The application of ten bushels to the acre annually, as recommended by Mr. Puvis, *as long as the crops continue to derive addition benefit from its use,* would perhaps be the safest mode of proceeding, where there is a doubt of its proving beneficial. But note well, we speak of caustic, fresh burnt lime, which can only be applied with certain profit to particular soils, where there is lignious, peaty, or inert vegetable matter, which it is the office of lime to decompose and fit as food for plants. And further—quick lime soon becomes mild or carbonate of lime, by its union with carbonic acid, which it imbibes from the earth and the atmosphere—when both its qualities and its offices becomes changed—it then improves the texture of the soil, and increases its capacities of fertility. The analysis of a soil can alone enable one to determine whether mild lime, or marl, is likely to benefit it, and to what extent. Carbonate of lime may beneficially exist to the amount of two to four per cent, in the upper six inch stratum of the soil. But as our correspondent is located on a primitive formation, destitute, or nearly so, of calcareous earth, there is no doubt but mild lime, in all its forms, will constitute a profitable application.

We subjoin the general rules, in relation to the application of lime, laid down in British Husbandry, which seem to apply well to our practice.

> "1. Before the application of lime, the land should be thoroughly drained and laid dry.
>
> "2. It may be carried on when the teams are most at leisure; but summer is the best season; and it never should be laid upon the land except in dry weather.
>
> "3. It should be laid on while in a powdery state—the drier the better—and kept as near the surface as possible, as then best adapted to mix intimately with the soil.
>
> "4. It may be applied either quick or effete; but if in the former state, it will have more effect in cleansing the land, and a less quantity will serve the immediate purpose. It should, however, be carted upon the land as soon as possible, and spread directly before the plough, letting that follow so quickly, as that the body of the lime shall be slaked in the soil; and it must be cautiously applied to light soils.
>
> "5. As it has a tendency to sink into the ground, and it is important to preserve it near the surface, it should be ploughed with a shallow furrow.
>
> "6. When found, after a few years, in lumps, and much below the surface of the land, it should be ploughed up and repeatedly harrowed, so as to ensure its intermixture.
>
> "7. Clays and strong loams require a full dose; but for sands and other light soils, a much less quantity of lime will serve—each in proportion to the strength of the lime and the land.
>
> "8. If the land be not supplied with the same quantity of putrescent manure that is usually laid upon other soils, the crops will suffer; and if it be not then laid down to grass for a long series of years, it will be worn out and exhausted."

We add the following from Prof. Low:

"Lime may be laid on the surface of land when it is in grass, and remain there until the land is ploughed up for tillage, even though this should be several years afterwards. The lime, in this case, quickly sinks into the soil, and acting upon it, prepares it for crops when it is again tilled."

"It may be spread upon the surface even when plants are growing. This, however, is rarely to be imitated."

For more precise directions for the application of lime *in the United*

States, we refer to the back numbers of the Cultivator, particularly to Dr. Darlington's communication in vol. i, p. 59.

NEW KINDS OF TURKEYS AND GEESE.

Our respected friend, Robert Sinclair, of Claremont Nursery, near Baltimore, Md. wishes us to advertise the public, that he will sell, at $4 the pair, a few pure white turkeys and Westphalian geese.

PLOUGHING MACHINE.

Marshall Williams, of Stockbridge, Mass. has sent us a drawing and description of a ploughing machine, to be driven by steam, and containing a combination of ploughs, and asked our opinion of its probable utility This we dare not venture to give, at least till we see it on trial.

ROOT CUTTER.

We have received from D. M. Walker, Esq. of Whiting, Vt. a drawing and description of a root cutter, invented by L. P. White, of that town, but who does not intend to patent the invention. Mr. Walker states, that though but a common farmer, he has built one of these machines himself; that the iron work for it cost about six dollars; and that with two men to turn the cranks, he has cut with it a bushel of ruta baga in one minute, into pieces half an inch thick and one and a half inch wide. We may hereafter publish the communication entire. In the mean time we will state, that the machine consists of a cylinder of hard wood, twenty-two inches long and nineteen inches in diameter, into the periphery of which are inserted four knives, of eleven inches, at proper angles to slice the roots as the cylinder revolves. The cylinder is perforated with mortices where the knives are inserted, so as to permit the sliced roots to pass to its centre, and out at one end. On the upper sides of the mortices are inserted small knives, with blades three-fourths of an inch long, to reduce the slices as they are separated by the large knives. The machine, we suppose, might be afforded for ten to twelve dollars. The drawing and description are at this office, at the service of any mechanic who may wish to construct a machine. A good machine for slicing roots is much wanted, and would find a ready sale at a fair price.

THE DAISY—COMPOST.

G. W. Allen, of Hunterdon, N. J. inquires of us, how to get rid of the white daisy—and how to convert his swamp muck into compost. The daisy is got rid of most readily by alternate husbandry and good tillage. Mr. A. will find his other inquiry answered in the last and present numbers of the Cultivator. A compost of swamp earth and lime, or yard manure, properly prepared, will benefit corn. Spread and harrow it in before planting.

CORRESPONDENCE.

GREAT CROP OF CORN.

Laurens, Dec. 1, 1837.

JUDGE BUEL,—Dear Sir,—I send you a statement of the expense and product of an acre of Indian corn, raised by me, together with the mode of its cultivation. The corn was the little eight rowed yellow variety.

Soil and culture.—The soil is a warm sandy loam. It was ploughed deep in the autumn of 1836. About the first of May, I carried on, and spread all over the ground, about thirty loads of stable and barn yard unfermented manure, then rolled and harrowed the ground well, being careful not to disturb the sod, which was timothy, and mown the summer preceding; and on the 9th and 10th May planted the same, two and a half feet between the rows, and fifteen inches between the hills. It was dressed with ashes when it made its appearance above ground. On the 10th June commenced weeding and thinning, leaving from two to four of the best spears in each hill, the whole averaging about three spears in a hill. After this I ashed it again, using in all about ten bushels of good unleached house ashes. On the 10th of July commenced hoeing, and at the same time took off all the succors—put no more earth about the hills than we took from them, but carefully cleaned out all the weeds from the hills. The seed was prepared by simply wetting it with warm water, and rolling it in plaster.

Harvesting.—The corn was cut up the 18th September, at the ground, and shocked in small shocks; and on the 9th of October it was housed and husked, and subsequently threshed and measured.

Product.—Ninety-nine bushels of first rate corn, without even a nubbin of soft or poor grain, owing to the fact, probably, that there was no suckers on which to grow them.

EXPENSES.

Ploughing one day and board,		$2 00
Rolling and harrowing one day,		2 00
Seed and plaster,		1 25
Planting two days, at 75 cents,		1 50
Five days hoeing and board,		3 75
Horse and hand with cultivator two days,		2 00
Cutting up and shocking two days, 75 cents,		1 50
Husking and housing ten days, 75 cents,		7 50
Ten bushels ashes, at 25 cents,		2 50
Labor on ruta baga, (sown among the corn,)		1 50
Interest on land, at $50 per acre,		3 50
Threshing corn three days,		2 25
35 loads manure, at 25 cents,	$8 75	
Carting and spreading do.	8 75	
	17 50	
Deducting two-thirds for succeeding crops in rotation,	11 67	
		5 83
Total charges,		$37 80

VALUE OF PRODUCE.

70 bushels seed corn, (selling price,) at $2,	$140 00
29 do. sound do. (do.) at $1.25,	36 25
4 loads stalks, at $2.50,	10 00
20 bushels ruta baga, at 25 cents,	5 00
1 load pumpkins,	1 00
	$192 25
Deduct expenses,	37 08
Nett profits,	$155 17

H. HOPKINS.

I hereby certify, that I am personally acquainted with the above named Henry Hopkins, believe him to be a person of veracity, and that the truth of his statement may be depended on. A. MARK, *Jus. Peace.*

GREAT RUTA BAGA CROP.

Lenox, Madison co. Dec. 6th, 1837.

Mr. BUEL,—Sir,—I saw in your March number of the Cultivator a premium offered on several articles of agriculture; I therefore send you a statement of one acre of ruta bagas raised by me this season, hoping, if it does not prove a successful competitor, the cause of agriculture may receive an additional witness in its behalf. The soil is a rich mould of sand and clay, containing besides the vegetable decompositions, some lime, and a small portion of the oxide of iron. It is first rate wheat land. The manure was drawn in the fall and ploughed in, which I deem very essential in raising this crop. About the 15th of June the seed was sown in drills about twenty inches apart one way, and from eight to ten the other. I raised from one and three-fourths acres 1,800 bushels; the three-fourths of an acre was not as well prepared as the other. The product of the acre was as follows.

Dr.	To 30 loads manure, at 25 cents,	$7 50
	" carting and spreading the same,	7 50
	" ploughing one and a half days,	3 00
	" rolling and harrowing,	1 00
	" seed,	50
	" sowing one-half day,	50
	" Three hoeings four days each, at 7s. per day,	10 50
	" harvesting eleven days, at 6s.	8 25
	" interest on one acre, 75 dollars,	5 25
		$44 00
Cr.	By 1,120 bushels ruta baga, 1s.	$140 00
	" tops for fodder,	6 00
		$146 00
		44 00
	Balance,	$102 00

WILLARD COTTON.

State of New-York, Madison county, ss:

I, Stephen Chapman, a Justice of the Peace of the town of Lenox, in said county, do certify that I am well acquainted with Mr. Willard Cotton, whose name appears to the above; and that he is a man of truth and veracity and entitled to full credit. S. CHAPMAN,

December 15th, 1837. *Justice of the Peace.*

RUTA BAGA CROP.

J. BUEL, Esq.—Sir,—I have cultivated during the past season one and one-third acres of ruta baga turnips, on half of an acre of which I measured and had five hundred and seventeen bushels of roots. It was a clover sward, which had been pastured one year; soil a sandy loam. Before ploughing I put on fifty loads of barn-yard manure; I ploughed it one week previous to planting. I put in my seed in drills two feet and a half apart; time of sowing was on the 22d June.

50 loads of manure, at 6s. per load,		$37 50
Spreading and carting, at 1s. do.		6 25
Ploughing one and one-fourth days,	at 16s. per day,	2 50
Harrowing one-half day,	at 16s. do.	1 00
Sowing seed one-half day,	at 8s. do.	50
Weeding three times 30 days work,	at 4s. do.	15 00
Going through with cultivator three times,	at 12s. per day,	2 25

Pulling roots, ten days work, at 5s. per day,	6 25
	$73 25

On the one and one-third acres I had 1,303 bushels roots.

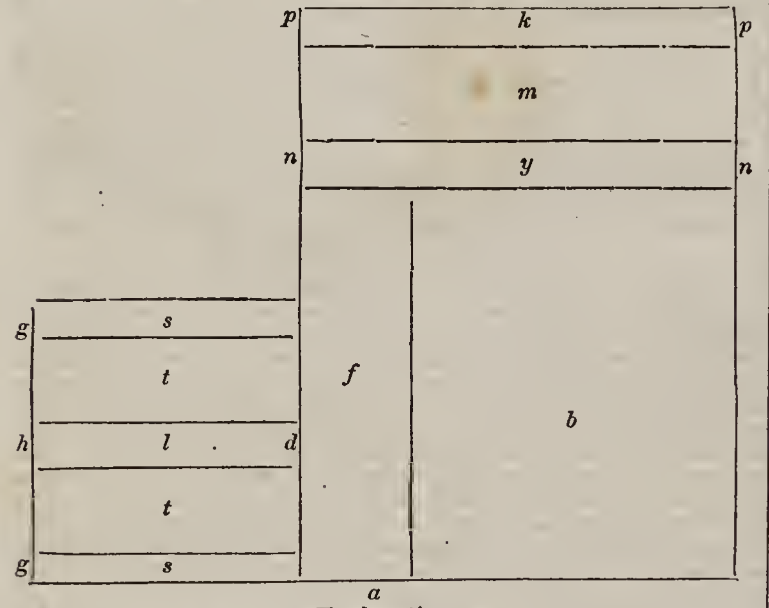
1,303 bushels of roots, at 3s. per bushel,	$488 63
Deduct expenses,	73 25
	$415 38

Bethlehem. Nov. 18th, 1837. JOHN J. BULLOCK.

PLAN OF BARN AND OUT BUILDINGS.

Russia, Herkimer co. Dec. 9th, 1837.

Mr. J. Buel, Esq.—Sir,—I hereby send you the plan of a barn for grain and cattle adapted to common farmers, for the premium offered in the first number of the fourth volume of the Cultivator.

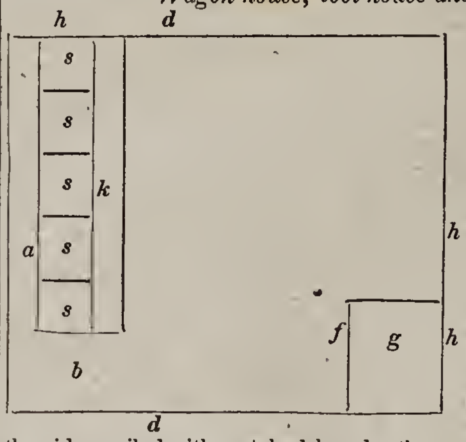


Explanation.

The barn ninety feet long by twenty-six to fifty wide; *a*, great doors twelve feet wide; *f*, floor fourteen feet by thirty-five; *b*, bay thirty-five feet by thirty-six; *l*, alley eight feet by forty; *d*, slide door from the floor to alley; *t*, *t*, stables nine feet wide; *s*, *s*, sinks three inches in depth; *g*, *g*, stable doors four feet wide; *h*, alley door; *y*, alley six feet by fifty; *n*, *n*, alley doors five feet wide; *m*, stable nine feet wide; *k*, sink three inches deep; *p*, *p*, stable doors.

There should be a good stone foundation laid in lime mortar. The main body of the barn, including the floor and bay, needs no particular description; it is thirty-five feet by fifty, and will require four bents, posts sixteen feet, on the opposite side of the floor; four bents, sixteen feet posts; the first story, six and a half feet in the clear, with a good flooring for hay; the upper beam in the end next the floor may be the great beam on one side of the floor. There should be in the centre a tie beam from plate to plate. The sills or sleepers for the stable floors should be laid across the building, each end of the sleepers should be rabbeted three inches in depth, and in length sufficient for the width of the sink. The bottom of the sink should be six inches below the top of the side sill, the sill forming one side of the sink. This will make the stables nearly seven feet high, and preserve the sills; the plank for stable floors three inches thick. For fastening cows and oxen, &c. in the stable, I would use what are called stanchials, (which are in general use with us,) which are made with sill and plate six inches square each, four feet three or four inches apart, by framing slats or pieces of plank two inches thick into them. First a piece of plank six inches wide, five feet four inches long, then a space of six inches, then a slat three inches wide, made fast in the sill, the upper end passing through the plate, there being a mortice fourteen inches long in the plate, to let the slat fall back, so that the animal's head may pass between the slats; that done, the slat is raised perpendicular, when a latch twelve inches long, three inches wide, with a notch or shoulder of one and a half inches, falls back of the slat, a projecting part of the latch resting on the top of the slats; the latch is made fast at one end of the long mortice with a pin. When you wish to release the animal raise the latch. Each cow will require a space of two feet eight or nine inches. The sill will form a side boundary of the alley. There should be four posts on each side of the alley, from the beams to the cross sills and sleepers; cattle feed on the floor of the alley. The remainder is a lean to fifteen feet wide, posts seven feet, secured to the upright part by girts and rafters, the upper end of the rafters resting on the plate of the upright; the stable may be used for cattle or horses, or both; if not used for horses, the alley may be seven feet wide if desired. The calculation is to put in hay at each end of the barn from the outside. The stables will hold from forty-six to forty-eight cows; the manure may be thrown out at the doors and through the sides of the stables, but should be removed into the field so soon as the frost is out in the spring. Stone for the sides of the stabling would be preferable to wood. The stables can be well ventilated and lighted; are very easy of access from the barn floor or out side. Coming on to the barn floor through a small door within one of the great doors by walking thirty-five feet, you can know the standing condition of every animal in the stables. If you cut your straw and hay on the barn floor, or feed roots therefrom, they are easily distributed to every part of the stabling. Soon as the hay in the bay is below the plate, it can be thrown from the mow into the alley. All the advantages over the floor can be had for grain commonly had in barns of this size.

Wagon house, tool house and horse stable.



Explanation.

This building is thirty feet by forty; *b*, stairway to go aloft; *d*, *d*, great doors 12 feet wide; *a*, rack; *s*, *s*, *s*, *s*, *s*, stalls for horses, one 7 feet wide, to feed the team in the harness; *k*, sink three inches deep; *g*, granary large as you please; *f*, door for granary; *h*, *h*, *h*, windows; the remainder for wagons, sleighs, tools, &c. There should be a stone foundation laid in lime and sand; the posts sixteen feet; the first story nine feet in the clear; a substantial ground floor; the sides ceiled with matched boards; the upper floor with matched plank; the granary plastered; the out side clapboarded; a loft for hay. A very convenient and comfortable building.

Respectfully submitted, THOMAS JOHNSON.

Lake C. H. Ia. Dec. 12th, 1837.

J. Buel, Esq.—Dear Sir,—I consider your items of matter relating to household economy, as the most universally useful part of the paper. Thousands who possess the raw materials in abundance, lack "the art of making a good dinner out of small means." The following simple recipes are valuable, in my family. If you find room for them, I hope they will prove so in many other families.

Yours truly, SOLON ROBINSON.

BUTTERMILK BREAD.

Many of your readers are not aware of the value of buttermilk, in making biscuits. Let me tell them how to use it, I am sure they will thank me.

Take a large table spoonful of sal aratus, (not pearl ash,) pulverize or dissolve the lumps, and put it into buttermilk enough to wet up a gallon of flour. Lard or butter may be added to make the biscuit *short* if required. In summer it must be baked directly, or it will sour. In cold weather the dough may be kept. The biscuit will be very light, very sweet, very palatable, very nourishing, very wholesome, and a very considerable item of economy in the consumption of an article that is too often made food for hogs, when so valuable as food for man. Bonnyklauber will answer as a substitute for buttermilk. But the latter may be put up in jars, or a butter keg, in the fall, and kept till spring, by occasionally pouring off the water that rises on the top. No matter how sour it becomes, put in sal aratus enough and it will become as sweet as fresh yeast, and answer the same or a better purpose.

While upon the subject, let me tell those who are not informed, the difference between

SAL ARATUS AND PEARL ASH.

Pearl ash is made from the lye of wood ashes; it will make soap, and by the affinity it has for water, is very likely to dissolve and waste when exposed to the air; it gives food an unpleasant soapy taste when used in excess, with lard or other greasy matter.

Sal aratus is made from pearl ash, by a process that destroys the soapy principle, and the affinity for water, so that it will keep dry as well as chalk, &c. It is also much more valuable in cooking, on account of possessing in great excess the very principle of yeast, and produces the same effect upon bread when mixed in with acid, by which the gas that produces what the housewife calls "raising," is disengaged from the sal aratus and expands all those little cavities in a light loaf.

The process of changing the pearl ash into sal aratus is very simple. It is effected by placing the pearl ash in sacks over the mash-tubs of a grain distillery during the process of fermentation, and by the great affinity it has for the carbonic acid gas that is disengaged from the meal, it becomes not only dryer, but is so much increased in weight as to pay a profit on the operation. I wish the whole process of distillation was of as great value to the world.

As " economy *in* the house," is the active partner of " industry *out* of the house," I will add one more to your valuable list of cooking recipes. Though perhaps it is out of character for a " Hoosier " to tell a Yankee how to make

PUMPKINS PIES.

" Grease the pie plate evenly and well, and sift fine dry corn meal, about as thick as you would make a flour crust, evenly over it, and then spread the prepared pumpkin over the *meal crust*, bake in the usual way, eat it warm, or before it is many days old." Be assured that such a pie is truly good, rich, healthy, economical. It can be prepared ready for the oven (the pumpkin being previously stewed,) in five minutes, when " I wish we had a pie for dinner," is expressed. As " nothing to shorten pie crust " is required, it can be made after the " lard tub is out," and also when the good woman " wishes we had a little flour to make pies of our sweet pumpkins," and when the good man replies " my dear we can't afford it, flour is $10 a barrel." I beg of you to try it. If you do not pronounce it valuable knowledge, cheaply acquired, I never will trouble you again.

ON FEEDING MILCH COWS WITH RUTA BAGA.

J. Buel, Esq.—Dear Sir,—I forward you, with this, two small rolls of butter, produced from the milk from my Durham cows, which are fed half a bushel of ruta bagas each per day, with cut hay. My object is to ascertain whether you can discover any disagreeable flavor caused by the roots, for as I am in the practice of using it daily, my taste may be so far vitiated as not to notice it.

Many farmers have avoided feeding cows in milk with ruta bagas, supposing they gave to the milk a nauseous or disagreeable taste; in fact, I must confess I was among the number. My conclusions were drawn from the fact of feeding the tops in the fall, which imparted such a disagreeable flavor to the milk, that we could not use it.

On the first of November last I commenced feeding my cows with carrots, which increased the quantity of milk at least one-third, and gave to the butter a beautiful rich flavor and color. After the carrots were fed out, I commenced feeding with the ruta bagas, which was about the 10th December last, since then they have rather improved in flesh and quantity of milk—and the butter retains its beautiful rich color, which, I believe, is uncommon in winter.

From the above facts, I am well convinced, that ruta bagas may be fed to milk cows with safety; that they *will not* vitiate the flavor of the milk; and that they are as valuable for milk cows as for other stock. I would observe, however, that the roots are cut fine with a machine, and on each mess after being deposited in the mangers, a small quantity of fine salt is sprinkled on them.

Since the 10th of November I have fed my breeding sows and store hogs, exclusively on ruta bagas, with the exception of a small quantity of buckwheat bran.

The plan of feeding which I have adopted is this: in the morning we feed them raw, cut up the same as for cattle; at noon we give each full grown animal a bucket containing ten quarts of boiled ruta baga, with a small quantity of buckwheat bran, say one of bran to six of roots, mixed and made thin with water. At night we give another feed of them raw.

On this feed they have not only improved in flesh, but some of them are actually fat.

I occasionally feed them to my horses who become remarkably fond of them.

Very respectfully yours.

C. N. BEMENT.

[The butter sent us by our neighbor is a beautiful sample, wholly free from turnip flavor. We can add our own experience for sixteen years, that milk and butter are not, to our taste, injured in flavor by feeding milch cows with the *roots* of ruta baga, accompanied with the free use of salt. —*Conductor*.]

WHEAT AND WHEAT BREAD.

One of the chief appendages of a well ordered table, is a conical pile of fine wheat bread. A table, however gorgeous as to furniture, cannot be considered in complete order, without some of the precious loaf somewhere near it. Nothing has been found as a substitute, either in gust for the palate, or in properties of nutrition for the stomach. It is most easy of manufacture; will keep longest without acidity, and even when a little sour, is not considered entirely lost. It is said that a virulent spirit will grow mild, and a surly temper become agreeable, by frequent labors in rolling, folding and shaping the uneasy dough. How this may be, I cannot decide; one fact, however, is clear, *a wry* face is seldom observed, while the hands are employed in kneading the precious dust. Who, at table, after a ride of sixteen miles, on a winter morning, is not touched with a spirit of gratitude, towards his hostess, if, as he takes his second cup of Mocha, he sees approaching some dozens of smoking loaves of choice wheat bread? In quality, other bread holds no comparison, even with butter and honey. Wheat, alone, is a luxury.

But let me not disparage all other grain, from which bread is made. Corn bread is a staple article in New-England. Many have attained their manhood on it. Rye, barley, oats, buck and tea wheat possess many valuable properties, and with the aids of a keen appetite, are not to be rejected. We will not spurn what is, and must be, in daily use. Probably not more than one-fourth of all the bread, consumed in New-England, is made from wheat. Few families, located on old farms, use it all the time, and many have none the year round.

Mr. Buel, do you ask why a man writes in this manner, and for what purpose, what is thus written is offered to you for rejection or publication? I answer, my small family are freely battening on fine wheat of my own raising; a thanksgiving is enjoyed every day. That exorbitant duty I have assisted to pay to the flour dealers at the south and west for ten years past, is not likely the present year to be exacted. I have obtained one complete victory over the secret, and hitherto, successful enemy, the weavel, and hope, ere long, that starvation may effect what contrivance and force have attempted in vain.

The writer of this article is a reader of the " Cultivator," and lives in the eastern part of an eastern town, in an eastern county in Vermont. Distant place! a good ways off! The very focus between Portsmouth, Boston, Hartford, Albany and Montreal; light freight on all goods of course. So you may infer I am on the banks of the Connecticut, where the devastations of the weavel have been more entensive than in any other section.

My last experiment in 1828 proved abortive, as from six bushels sowed, nothing but straw was harvested. Field after field has been sowed at the usual period of early sowing, say April 20th, yet the greatest effort, both in preparation of seed and soil, have availed nothing; and until the past season, on the banks of the Connecticut and its larger tributaries, I have not known, for eight years past, a single instance of early sowing that proved successful.

On the 30th day of May last I sowed three bushels of clean wheat without any preparation by brine, lime, ashes or vitriol. The soil was clayish, had been well manured the preceding season, and produced a light crop of frost bitten corn. A light fog of plaster was thrown over one part of the field, and a thick one of lime over the other; yet no benefit from either was perceptible. My harvest was not so abundant as some of the western fields produced, where forty or fifty fold are gathered; I shall be satisfied with twice ten, for one; and may not get quite that. But the quality is beyond any thing harvested on my premises at any former period.

Now, Mr. Buel, this is the effect of late sowing. The soil was like other soils; so also was the seed. The same wind fanned my field fanned my neighbor's. One duty, however, the year previous, was omitted in my husbandry, which another man would have done; after the frost nipped my corn, hoeing was neglected altogether. One-half mile, both above and below my farm, and near the river, good wheat of late sowing was harvested, while two miles below, and four miles above, on similar soils, large fields of early sowing were entirely destroyed.

Since the ravages of the weavel, I have frequently come to the conclusion, that my farm must be abandoned for the wheaten soil of the west, or a hopeless conflict with that invisible enemy of the palate, be encountered. The empty barrels with Rochester, Bloomfield and Troy brands had multiplied, and almost the entire income of a small stock was required to purchase flour. How frequently has Dorothy gently tapped my arm, and with smiling countenance but irresistible eloquence said, " Albert, another barrel of flour, the bowl touched the bottom this morning." " O, Dorothy! what shall we do? Not a dollar has been received since the last barrel was purchased, and then only three remained in the box."

How different and delightful the antithesis of the foregoing request. " Dorothy, when shall we send George to mill with another grist of wheat? We have plenty, and you may use it freely, though prudently; and be sure to send a moiety of every grist to widow B. widow W. and old Mr. C.

ALBERT.

Thetford, *Vt. December*, 1837.

RELIEF FOR CHOAKED OR HOVEN CATTLE.

Cobleskill, *December 14th*, 1837.

Jesse Buel, Esq.—Sir,—Having seen the request of your correspondent, Mr. Pliny L. Evans, in the last number of the Cultivator, that some one would communicate a remedy for bloat, or as I suppose he means what is called hoven in cattle, I hereby make known to the community, should you think it worthy of publication, the following derived from experience.

Five years since, in feeding a pair of fatting oxen, it happened that one of them became choaked by a potato, and it could not be removed without, as was supposed, endangering his life. He, in consequence, in a day or two, became so extremely swollen and distressed, that it was apprehended he would die, and to protract life, he was tapped on the left side.*

---

* By tapping is meant the thrusting a knife or any other sharp pointed instrument, not less than an inch and a quarter in width, between the last long, and the first short rib, on the left side, through the hide, directly into the paunch, with the back of the knife, as low as the end of the short rib, the edge being upwards, towards the back, and the point towards the centre of

In cases of choaking several remedies have been prescribed, but they are mostly difficult to be put in practice by the inexperienced, and doubtful at least in their effects. Those I have witnessed, for want of skill, and frequently by too much violence, have hastened death, rather than saved life. And in my own case, when about to kill the ox, that was considered as lost, to end his suffering, a neighbor said that a drovier, (whose name is not recollected,) had stated that a bottle of soft soap turned into the beast's throat, would occasion the obstruction to be removed, either by disgorging or pressing it downward.

It was in winter, and the soap would not run from a bottle freely without dilution. Hence a large junk bottle was obtained, and as much soap as it would hold, including warm water enough, after having been blended by a thorough shaking, to have it run freely while warm. The ox was next securely fastened in a shed. A strong halter put in his mouth, and his head drawn up by a rope passing over a beam. A man of strong hands then drew out his tongue as far as he could hold it fast, while another thrust the nose of the bottle deeply in his throat, till it was emptied of its contents. The ox's head was then let down, and in a great effort by him made, either to avoid strangulation or the offence of warm soap, the potato was thrown out. And thereafter, within an hour, the ox ate freely, and subsequently fattened well.

In 1836, I bought a pair of working oxen. One of them on two occasions, by eating, after considerable fasting, voraciously, became bloated or hoven, and upon information of the ailment, the soap was put down him as before mentioned, and the ox at each time was presently relieved.

The same ox afterwards fed safely during eight months, preformed well, and though the pair were but of middling size, were sold at the end of the above time, in perfect health, for $130.

I am your friend, NICHOLAS RUSSELL.

PERIODICALS OFTEN EFFECT THOSE WHO DO NOT READ THEM.

J. Buel,—Sir,—I am disposed to mention one fact, which may encourage you in your arduous labors, and which may also show the important and responsible situation of editors and conductors of public journals.

In the course of the last summer a neighbor of mine invited me into his orchard to witness the effects ot an experiment he had made, at the suggestion of another. Last winter one of his apple trees of considerable size was peeled around near the bottom by mice. He took four or five cions from the top of the same tree in the spring, and inserted them in the bark, one end below and the other above the naked trunk, in the manner of side grafting. When I saw the tree (perhaps in August) it was growing very vigorously, the sap having passed through the inserted cions. On seeing this, I was determined to send you an account of it, that it might be spread out before the public in the Cultivator. Not long after this occurrence, I was reading one of the first volumes of this excellent work, which I had recently received, and found a description of a similar process there. I know not through how many hands this information had passed before it reached my neighbor, but it is certain he himself had not read it in the Cultivator. I mention this to show, that however extensively a useful publication may be circulated, its salutary influence may extend to hundreds, and thousands, who may never see it. On the other hand, let a publication be circulated containing articles which may be hurtful to the best interests of man, and its deleterious effects may be felt by thousands and millions, long after the publisher may have gone to give up his last account before his final Judge. O, how unspeakably important that every editor, and every one who presents any thing before the public eye, should never publish any thing but that may be useful to some one, either for time or eternity. L. H.

ON GYPSUM AS A MANURE FOR MEADOWS.

Mr. Editor,—Having, for the last few years, paid a good deal of attention to the subject of reclaiming and improving old meadows, permit me to give you the result of my experience for the benefit of the readers of the Cultivator.

I purchased four years ago about one hundred acres of land, that had been laid down to meadow many years previous. Part of it was alluvial, the rest upland adjoining. It yielded grass very unequally. In many places the lowland was light, and so of the upland, but in no part was it heavy grass, or upon the whole a profitable meadow. For the purpose of improving it, I drained such parts as required it, ploughed up portions, manured and again seeded; and other portions I manured with dung spread upon the surface, after having first scarified it with a loaded harrow. In places, however, where the surface was uneven, I previously applied the roller. My labors all tended to improve the subsequent crops, as each succeeding year the meadow gave additional yields, but still as a whole I was disappointed, for it did not fully meet my expectations. The manure was of some service, but not as much as I anticipated, and as all the product of the meadow, and likewise of the farm adjoining, was fed out upon it, the quantity made was large; it was, therefore, freely used, but not with proportionate beneficial results. The spring before the last, I was induced to apply gypsum to some of the poorer parts. The effect was decidedly beneficial, more apparent than what had followed from the application of dung, and so much so that I was induced by it to spread over almost the whole surface of the meadow the last spring; the growth of grass last year was very uniform and heavy; portions of the field that had hitherto given but an indifferent yield, now gave a heavy swath. The quantity received from it was about one-third more than it was two years previous, and of a fine quality of grass. The gypsum has the peculiar property of bringing in clover where it was never seen before, and its growth in such places as had been plaistered in the present instance was so striking, that a superficial observer would have thought the seed had been freely applied.

Farmers I think are not much in the habit of sowing plaister on their meadows. The crop they expect from them they leave solely to the bounty of Providence, without any aid or effort from them to increase it; but if my observation or experience can be of any use, I trust such as see this article, will at least be induced to try a sprinkling of plaister upon them; and I have the confidence to believe they will be amply remunerated, not only for their trouble, but a hundred fold for the expense.

A.

TO PRESERVE FENCE POSTS.

Mr. J. Buel,—Dear Sir,—If you think the following is worth a notice in your valuable paper, you will be at liberty to publish it. The subscriber believes it may be useful to many of your readers.

In the spring of 1822 I set some sawed hemlock fence posts, one-half of them I salted, boring a hole with an auger, commencing a little above the surface the of ground, boring downward and nearly through the post, then nearly filled the hole with salt, and plugged the hole to exclude the air and water. In the spring of 1830, the posts *not salted*, were all rotted off; on removing them there was not found a particle of sound wood below the surface of the ground. The salted posts are all now standing, and to appearance, may stand years longer. ABEL STILLMAN.

Poland, Herkimer co. N. Y. January 10*th*, 1838.

To cure scratches in horses, I have been very successful with an ointment of, say one ounce of corrosive sublimate of mercury in one pint of butter or lard, stirred while cooling. Apply moderately once in twenty-four hours to clean shanks. V. DOTY.

Carthage, Illi. December 6*th*, 1837.

EXTRACTS.

HINTS TO STATESMEN.

On promoting the Collection and Diffusion of useful Knowledge.

It is a saying sanctioned by the authority of Bacon, that "*knowledge is power.*" Of all the various sorts of power, enumerated by that great philosopher, this seems by far the most important. What gives one man any real superiority over another, but the knowledge he possesses? What enables some individuals, to produce abundant harvests,—to carry on a prosperous commerce,—to establish successful manufactures,—to excel in mechanism, or any other useful art, but the acquisition, and judicious application of that knowledge, in which others are deficient?

That the power and prosperity of a country, depend on the diffusion of useful knowledge, can hardly be questioned; and there is probably no art, in which a variety of knowledge, is of more essential importance, than in that of agriculture. The extent of information necessary to bring it to any thing like perfection, is far greater than is generally supposed. To preserve the fertility of the soil;—to free it from superfluous moisture;—to cultivate it t the greatest advantage;—to raise its productions at the least expense;—to procure the best instruments of husbandry;—to select the stock likely to be the most profitable;—to feed them in the most judicious manner, and to bring them to the most advantageous markets;—to secure the harvest, even in the most unpropitious seasons;—to separate the grain from the straw with economy and success;—and to perform all the other operations of agriculture in the most judicious modes, require a greater extent, and variety of knowledge, than might, at first view, be judged requisite.

---

the paunch. At the place designated, it is said the paunch adheres to the side.*

There is no danger in the operation, though it be stabbing, no apparent pain is occasioned, nor visible injury follows. Through the aperture the rarified air escapes with a violence proportioned to the degree of hoven or bloat. This operation from its simplicity, the necessary instrument may always be found near at hand; and the ability of any one, with but a small share of firmness, without the aid of others to afford relief in every case where the ailment is hoven, simply. A more particular description of hoven in cattle, its cause, and the cure in the note described, may be seen in the second Volume of the Plough Boy, of March 25th, 1820, at page 339, in the communication of Marlin E. Winchell.

---

* The trocar, a small surgical instrument, is preferable to the knife, for this operation. The danger in this operation arises from the fact, that as the foul air and matter escapes, the paunch contracts, and the foul matter, instead of passing out through the tube inserted for its passage, finds a lodgment between the skin and stomach, where it putrifies, and destroys life.—*Cond.*

But though a general knowledge of agriculture may be diffused over a great country, it is found by experience, that it cannot be materially improved, unless by comparing the various practices which subsist in different parts of the same kingdom. One district has been led to pay a peculiar and successful attention to one branch of husbandry, or, by a fortunate accident, some important discovery has been made in it, while other districts excel in other particulars of equal importance. Mutual benefit is derived from the communication of such local practices. Of this, the improved modes of draining by Elkington;—the warping of land on the banks of the Humber;—the drilling of turnips and potatoes in the northern part of the island;—and the more general use of the threshing-mill, and various other articles of agricultural machinery, may be cited as examples.

The advantages that may he derived from the result of those inquiries, which have been carried on by the Board of Agriculture, in so far as regards the culture of arable land, may thus be briefly stated. The means have been explained, by which, in fertile districts, and in propitious seasons, the farmer may, on an average, confidently expect to reap, from 32 to 40 bushels of wheat; from 42 to 50 bushels of barley; from 52 to 64 bushels of oats; and from 28 to 32 bushels of beans, Winchester measure, per statute acre. As to green crops, thirty tons of turnips, three tons of clover, and from eight to ten tons of potatoes, per statute acre, may be confidently relied on. In favorable seasons, the crops are still more abundant; but even these average ones, spread over a large proportion of the united kingdom, would produce more solid wealth, than foreign commerce could ever furnish.

The various means, by which useful information could best be collected and diffused, are, 1. Forming institutions for that purpose;—2. The establishment of experimental farms;—3. The institution of agricultural professorships;—and, 4. The improvement of veterinary knowledge.

1. *Institutions for collecting and diffusing Agricultural Information.* The establishment of a Board of Agriculture in Great Britain, scanty and limited as its means have been, has produced the happiest effects; and will probably in future be considered as an era in the history of the art. Notwithstanding the limited powers of that institution, the most distant parts of the country, are already made acquainted with each other's useful practices; and the knowledge of beneficial inventions, which, from the insulated state of farmers, might for centuries have been confined to the place of their origin, have been at once rendered generally accessible. The publication of the County Reports in particular, has proved of peculiar importance, from the discussions which they have occasioned;—the spirit of emulation which they have excited;—the knowledge which they have been the means of circulating;—the truths which they have established;—and the errors which they have contributed to overturn. Animated by the example of that Board, a much greater number of agricultural societies have been constituted, than ever before existed in any other country, there being hardly an extensive district in the united kingdom, in which one, and sometimes more, of such associations have not been established. A zeal for the improvement of husbandry, has been thus cherished and kept up; and in the course of friendly and familiar conversation, useful observations are made, new facts are stated, and practical knowledge, derived from experience, is generally diffused. Much good has already been done by these societies; but still more might be effected by them, were the Board of Agriculture, placed on such an efficient footing, that it might act as a common centre, to all these numerous associations, and were for that purpose invested, with the privilege of correspondence postage free. It would thus be enabled better than it is at present, to perform those public services, which were in the contemplation of those, by whose exertions the Board was originally established.

2. *Experimental Farms.*—The art of agriculture, can never be brought to its highest degree of perfection, or established on rational and unerring principles, unless by means of experiments, accurately tried, and properly persevered in. The ardent inquirer, has too long been obliged to rely on vague opinions and assertions, which have not been warranted by sufficient authority; it is full time, therefore, by the establishment of experimental farms, under the sanction, and at the expense of government; or by enabling the Board of Agriculture, to grant adequate premiums to deserving persons, for new discoveries, to bring the art to as great perfection as possible, by ascertaining the principles on which it ought to be conducted.

It is alledged, that there are many distinguished characters, who carry on experiments for their own information and amusement, by means of which, every important fact, will in process of time be ascertained; and it cannot be doubted, that their example is of very great advantage to those, who have the means of examining the progress that is made. Their farms, however, are, more properly speaking, *pattern farms*, for the advantage *of the farmers in their immediate neighborhood*, than experimental ones, in the strict sense of the word; and they are too often, rather the partial records of successful experiments, than the faithful journals of success and of disappointment. In order to render experimental farms generally useful, they ought to be open to the inspection of the public; the account of each experiment ought to be regularly published, and every new practice, likely to improve the cultivation of any considerable part of the kingdom, ought to be examined with the utmost precision, every trial repeated for confirmation, and, if possible, made by different persons, in different places, and on different soils.

It cannot be expected, that persons of high rank, whose attention is necessarily directed to other objects, should renounce their ordinary pursuits, and devote themselves exclusively to the conducting of agricultural experiments: but if one or more experimental farms were established, under a proper system, it would ere long be discovered, what practices ought to be avoided, as well as what ought to be pursued. It is important, that the one should be made known as well as the other; yet *errors in husbandry*, are seldom communicated to the public, or known beyond the sphere of a confined neighborhood, because a farmer is in general ashamed of acknowledging his want of success. Unfortunately also, when his experiments answer, they are sometimes concealed, least others should avail themselves of the discovery. The object of an experimental farm, however, should be, to ascertain facts *and to publish them;* and as much credit would be acquired, by an intelligent conductor of an experimental farm, for his exertions in detecting errors, as in establishing facts likely to be useful.

It would surely be a highly beneficial measure, for a country, possessing such an immense revenue, to lay out any moderate sum that may be necessary, were it only 5,000*l.* per annum, for ten or twenty years, to ascertain points of such essential importance, and which might be the means of making, very great additions, to the national produce, wealth and revenue.

3. *Agricultural Professorships.**—It is not many years ago, since, at the expense of a private individual, (the late Sir William Pulteney), a professorship was established at Edinburgh, for reading lectures on the art of agriculture. The utility of such an institution is so evident, that it ought to be extended to all the other universities. The attention of young men, by such establishments, would be directed early to this most useful of all the branches of knowledge, which has now become, the general subject of conversation, wherever they go. If they inherit landed property, agriculture is the topic to which their views should be particularly directed; and as there is scarcely any profession, which will preclude them from spending some part of their time in the country; and if, after having accumulated a fortune, they become proprietors of land, their having early acquired such knowledge, would be a source of much gratification, and perhaps of advantage. For such establishments, no new grant would be necessary, or required from parliament, hut merely an act, suppressing those professorships, which are at present sinecures, or of little real utility, and establishing in their room, those of agriculture.

4. *Improvement of Veterinary Knowledge.*—Some encouragement has been given, by an annual grant, to the acquisition and diffusion of veterinary knowledge; a deficiency in which, had proved so fatal to the public interest. It is not improbable, that for every pound of public money that has been in this way laid out, a thousand has been saved in our national expenditure, in the article of horses alone, employed in the cavalry and artillery. It would be desirable, indeed, that schools for veterinary knowledge, should be established in all the principal towns in the kingdom; and that the preservation of every species of our valuable stock of domestic animals, should no longer be left to ignorance or quackery, but that the practice to be adopted in the management of their disorders, should be grounded on scientific principles.—*Sir John Sinclair.*

[*From the Genesee Farmer.*]

SUCCESSFUL CULTIVATION OF ROOTS.

Mr. Tucker,—My business is to work, and not to write for the press, but as you ask communications from the farmer, I will, in my plain way, state what I have experienced in the cultivation of the potato, ruta baga, mangold wurtzel, carrot, and suger beet; manner of feeding, storing, &c. and the quantity of roots I raised this season.

The potato with me for ten years, the last excepted, has been a fair crop, but by adhering to the old method of tillage, has been more expensive than is necessary, as I find by the course I have adopted this season. I planted three acres the 29th and 30th of May; first ploughed, then manured with coarse barn-yard manure; then ploughed again and harrowed. Struck out the rows three feet apart with a one horse plough, say five inches deep; dropped the seed eighteen inches apart, turned back the furrow, and the work was done. For hoeing first and second time, the cultivator, so gaged as to fill the whole space between the rows, was passed through, followed by the hoe, giving a slight dressing, but making little or no hill, and the whole labor, after the ground was fitted, did not exceed three and a half days' work per acre. By the use of the plough the seed was planted deep; the potato never takes a downward direction. The cultivator loosened and mellowed the earth so as to allow the roots to extend, and to occupy nearly the whole row. *Get an expanding and contracting cultivator. Get one! Get one!!* The product was over 430 bushels per acre; 1,300 bushels from the three acres.

---

* We would substitute agricultural schools for agricultural professorships. Agriculture will always be a subordinate and a neglected study in literary schools. We want the *practice* as well as the *study*—the *art* as well as the *science.* No young man can become qualified as a first rate farmer without learning *how* things should be done, and *why* they should be done.

The ruta baga I had cultivated to considerable extent for three years with success. This year I planted three acres in drills twenty-one inches apart 26th and 27th of June. So soon as up, I sifted house ashes and plaster, mixed in equal quantities, at the rate of fifteen bushels per acre, with wire sieves, row by row, over the whole. The effect more than answered my expectations: that little pest, the turnip bug or fly, or its ravages, was not seen at all, and the growth was most vigorous. One acre of the piece had been planted with carrots, only about one-fourth of which was standing, by reason of the insect, bad seed, or both, and ruta baga was planted in all the vacant places in the rows. They were thinned out, and hoed twice; they soon covered the ground, and the work was done. The product is over 1,000 bushels per acre; 3,000 bushels the whole, notwithstanding one acre was partially seeded with carrots, and produced 200 bushels. About one acre of the land is fine sandy loam, and the remainder is slate washed from a ravine, all highly manured.

The ruta baga I think draws more from the atmosphere, and less from the soil, than any other vegetable; for I have always found it retained the dew longer, and held it in greater quantities, than any thing else. It leaves the ground in finer condition than any other crop, and cannot be too highly valued. The carrot is excellent for fattening cattle, milch cows, &c. but is not so sure a crop, and requires much more labor in tillage. It does not always come up well, and is very liable to be destroyed by the insect.

The mangold wurtzel—of this root I planted one and a half acres on the 29th and 30th of May, (too late by ten days,) in drills twenty-one inches apart. Thinned once and hoed twice; tillage same as the ruta baga, (ashes and plaster omitted.) About two-thirds of the piece was planted with seed, which proved to be a mixed kind of all the beet family; the other one-third part was the pure seed. The crop was fine, and if all had been of the same kind, the product I think would have been one-fourth larger. But as it was, the yield may be considered a fair one—over 800 bushels per acre, and the whole 1,250 bushels. See the importance of having genuine seed, for have no doubt the product was 200 bushels less than it would have been had all the seed been pure mangold wurtzel. Reynolds and Bateham, of Rochester, have sold me genuine seeds, and I should have confidence in any they will sell as such. I am much in favor of this root for feeding—probably it is equal to any, except the sugar beet.

The sugar beet—of this I had only seed to plant six rods of ground. It seems to be well adapted to our soil and climate. The growth was much greater than any thing I have seen of the best kind. I have no doubt it will prove most valuable for feeding cattle, as well as for sugar. The product was over eighty bushels, and at the rate of about 2,100 bushels per acre, or sixty-three tons. I rate all by weight, sixty pounds to the bushel, for otherwise most of the roots could not be measured with any degree of accuracy. Here follows a statement of the produce of seven and a half and six-one hundred and sixtieth acres of what may be considered first rate corn land, and in a high state of cultivation.

	Whole product.	*Per acre.*
3 acres potatoes,	1,300	433½
3 do. ruta baga, }	3,000	1,000
carrots, }	200	800
1½ do. mangold wurtzel,	1,250	800
6-160th sugar beets,	80	2,100
7½ acres 6 rods.	5,830 bushels.	

Five thousand eight hundred and thirty bushels, at sixty pounds per bushel, give 346,800 pounds, or 176 1-5 tons. The potatoes thirteen tons, ruta baga thirty tons, carrots twenty-four tons, mangold wurtzel twenty-four tons, and the sugar beet at the rate of about sixty-three tons per acre. This crop last year would have brought more than $2,300. What the price may be this year I know not. It is not my purpose to sell any, but to feed all to my cattle; so I have my own market, and trust I shall turn them to good account.

I am now feeding thirty-one head, at the rate of one bushel each per day, with hay nights and mornings, in their stalls, with corn and other coarse fodder through the day. I shall add to their allowance as shall seem proper, and change from one to the other now and then. All the cattle eat greedily, and are doing well.

Barn Cellars, Storage of Roots, and Manner of Feeding.

I have two barn-cellars under the barn floors, which together hold 3,000 bushels. They have each a small door at the back end, and scuttles through the floor—are well pointed and proof against frost. By opening the door and scuttles I can dispel the foul air or gas at pleasure, for large quantities of roots stored in cellars must be ventilated, or they will heat and spoil. These cellars are filled by drawing the loaded cart on the floor, and dumping the load through the scuttles—and the cellar is filled with very little labor.

The remainder of the crop were pulled and buried directly on the ground, such as potatoes, in heaps of about thirty-three bushels, leaving a small passage at the top, in order that the gas may pass off, without which they will not keep. In these two barns I stable thrity-eight head of cattle. thirty-one of which are beef cattle, one pair of working oxen, and five milch cows—all convenient to feed from the cellars. The roots are thrown upon the barn floor—cut with large English hay knives, which can be done by a smart man at the rate of a bushel per minute, and are passed to the manger with a scoop shovel. I have heard of cutting machines for roots—never saw one, nor do I wish to. A good pair of hands, knife, and a willing mind, is all the cutting machine I want. Every farmer should have a barn-cellar; the cost is but little, and the advantage great. No one can know their value until he has one.

With good cattle, well constructed, clean, well littered stables, plenty of roots, and good hay, with card and curry-comb appplied every day, I have fine cattle and good beef. Those roots should be extensively cultivated. They are within the reach of every man who farms any land, even one acre, and can be guaged to his wants. The poor man with his one acre and one cow, can at least plant six rods, and till it when he will do nothing else. See my eighty bushels of sugar beet from like quantity.

Let all raise according to his wants and means of feeding, depending on his own market, and omit raising a portion of other produce which costs him five times as much both in labor and land. This fact I have made plain in the exhibit of the entire product of two acres of ruta baga, buried directly on the ground as I pulled them, in heaps of say thirty-three bushels, weight one ton, standing as thick as cocks of hay in common meadows of one hundred each. Twenty to one! To see is to be convinced.

The point to gain is to be able to take the greatest product with least labor from the land, and to return the whole or an equivalent back again. Keep cattle, raise roots, &c. make manure, and one important point is gained; for with manure I can raise roots, and with roots fed to cattle I can make manure, and can pay back to the land as much as I received from it. I intend in due time to communicate the result of the feeding process this winter, and offer you something on other subjects, provided this effort in your opinion is worth the use of ink and types. Do with it as you please, and I am content.

I am, sir, respectfully, your ob't serv't,
JOHN SANFORD.

Marcellus, December 26th, 1837.

CHILLBLAINS.

This affection forms one of the most troublesome of the small troubles incident to cold weather. The cause of chillblains is generally to be traced to sudden transitions from heat to cold or the reverse. Exposure to cold and wet united, and particularly immersion in snow water, are causes of chillblains. Accordingly, they do not alway occur during the continuance of intense frost, but are often more troublesome when the temperature begins to be milder by a thaw. It was observed by the celebrated Larry, in the winter campaign of the French in Russia and Poland, that but a few days before, and a few days after the battle of Wagram, the themometer was very low, from ten to fifteen degrees below zero; and yet during that time there was no mortification, nor did any other particular suffering about the hands or feet occur. But about two days after the battle a thaw took place, the themometer rose from ten to twenty degrees, and then a great number of cases of mortification of the feet occurred in the army, in some particular divisions that were much exposed, and nearly all the soldiers suffered more or less.

Chillblains occur most frequently in persons of a feeble constitution and delicate skin. Hence they are common in females and in children. Like many other evils they are more easily prevented than cured. The means of prevention are, first, such as tend to diminish the susceptibility of the surface; and second, such as protect it from vicissitudes of temperature. Among the first there is nothing better than cold water and thorough friction with a coarse towel. Among the most popular remedies for chillblains may be mentioned a strong brine, vinegar, camphorated alcohol, oil of turpentine, and other articles of this class. We have lately seen recommended the tincture of iodine as a wash, which is said to bring the parts to a healthy state. A solution of the chloride of lime, in the proportion of one part to twenty-four parts of water, has been found to answer a good purpose. Another wash which has produced excellent effects is prepared by adding one part of tincture of flies to six parts of liquid opodeldoc. With this the affected part should be frequently rubbed. When the skin has broken, and the part has assumed the character of a sore, regular medical treatment must be resorted to, as the matter then becomes too serious for quackery.—*Phil. Herald.*

TO THE FRIENDS OF AGRICULTURE OF THE STATE OF NEW-YORK.

As the period is approaching to which the last agricultural convention stands adjourned, (viz. first Thursday of February, 1838,) we beg leave to draw your special attention to the importance of the subjects that must engage the attention of that meeting, in the hope that as many of the friends of agriculture will give their attendance there as practicable.

It is unnecessary to dwell on the importance of agriculture to every interest in the state. This is so obvious to all, that it would be only wasting time to prove what every one believes and admits. All admit, too, that there is vast room for improvement; that it ought to be made, and that they feel friendly to it. But what is to us totally unaccountable is, that what all admit and are friendly to, so few will take the trouble to promote. This great interest that clothes, feeds, supports and educates all—that matures every other, is apt to be made too subservient to the trifling pursuits of the moment—and while all little meetings, involving no valuable or permanent interests, will be well attended, one to promote agricultural improvement is commonly overlooked or neglected.

Some think it is quite enough to promote the interest of agriculture, if they give a dollar or two to the funds of a society: but, gentlemen, your money is of little consequence compared to your presence at such conventions. It is the encouragement of your personal attention; it is the interest you take in discussing subjects of improvement; it is the light that is elicited by a comparison of ideas, of those who have practiced what they have read and thought on. It is these that give interest to the subject, and push it on its march to improvement, much more than any pittance in money. At the last meeting of the convention, committees were apappointed to report upon several interesting subjects, to the subsequent one in February next. As these subjects bear materially upon the improvement in the different branches of agriculture, and as they have been mostly committed to gentlemen who are willing and competent to discharge the duties assigned them, it is presumed that these reports will give much additional interest to the meeting, and that they will embrace a body of facts that will be peculiarly beneficial to the farmer. Is it not important for us to inquire what has been done the last year? What we have added to our stock of knowledge, or the comforts of our families? What have we contributed to the general welfare, and to advance the interest of our common pursuit? We must not stand still, or continue to farm as our fathers, respectable as they were, have done: because we have long seen, that they pursued an extremely exhausting system. It is for us to keep pace with the advance of the age, and throw, not only the energies of our bodies, but of the mind, into the work. This we cannot do unless we meet and compare ideas, discuss new topics, hear all that can be said on the prosecution of the different branches of agriculture, and when we return to our homes, apply these new thoughts, so gained, to the advancement of our daily pursuit.

A thousand arguments, gentlemen, might be adduced, to show, not on- the need agriculture has of improvement, and the good results that will follow from our meeting—but let us ask, are they required? Is it even necessary to enumerate what is so obvious to all? Have we then no ambition to excel as farmers? No desire to promote our own or add to the prosperity of those around us? No " esprit du corps " attaches to all who are fond of their respective employments? It cannot be. We feel the assurance that as the former convention unanimously resolved to stand adjourned to the first Thursday of February, 1838, the meeting at that time will draw together a large number of the intelligent friends of agriculture.

JOHN P. BEEKMAN,
ANTHONY VAN BERGNN,
JESSE BUEL,
TEUNIS VAN VECHTEN,
JOHN TOWNSEND,
A. M'INTYRE,
JAMES McNAUGHTON,
J. K. PAIGE,
LEWIS F. ALLEN,
A. WALSH.

December 28, 1838.

Young Men's Department.

NATURAL PHILOSOPHY.

II. HYDROSTATICS treats of *the pressure and equilibrium of fluids.* From the experiments which have been made in this branch in philosophy, the following important principles, among many others, have been deduced:

(1.) *That the surface of all waters which have a communication while they are at rest, will be perfectly level.*—This principle will be more clearly understood by an inspection of the following figures. If water be poured into the tube A, (fig. 52.) it will run through the horizontal tube E, and rise in the opposite tube B, to the same height at which it stands at A. It is on this principle that water is now conveyed under ground, through conduit pipes, and made to rise to the level of the fountain whence it is drawn. The city of Edinburgh, a considerable part of which is elevated above the level of the surrounding country, is supplied with water from a reservoir on the Pentland hills, several miles distant. The water is conveyed in leaden pipes down the declivity of the hill, along the interjacent plain, and up to the entrance of the castle, whence it is distributed to all parts of the city. If the point A represent the level of the reservoir, C D will represent the plain along which the water is conveyed, and B the elevation to which it rises on the Castle hill. On the same principle, and in a similar manner, the city of London is supplied with water, from the water-works at London Bridge. Had the ancients been acquainted with this simple but important principle, it would have saved them the labor and expense of rearing those stupendous works of art, the *Aqueducts*, which consisted of numerous arches of a vast size, and sometimes piled one above another.

(Fig. 52.)

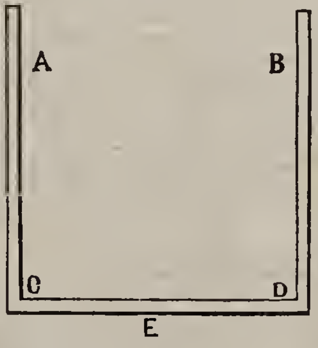
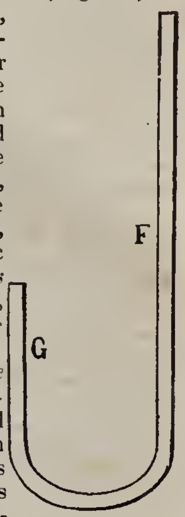


Fig. 53 represents the *syphon*, the action of which depends upon the pressure of the atmosphere. If this instrument be filled with water, or any other liquid, and the shorter leg G, plunged to the bottom of a cask, or other vessel, containing the same liquid, the water will run out at the longer leg F, till the vessel be emptied, in consequence of the atmospheric pressure upon the surface of the liquid. On this principle, water may be conveyed over rising ground to any distance, provided the perpendicular height of the syphon above the surface of the water in the fountain, does not exceed thirty-two or thirty-three feet. On the same principle are constructed the *fountain at command*, the *cup of Tantalus*, and other entertaining devices. The same principle, too, enables us to account for springs which are sometimes found on the tops of mountains, and for the phenomena of *intermitting* springs, or those which flow and stop by regular alternations.

(Fig. 53.)



(2.) *Any quantity of fluid, however small, may be made to counterpoise any quantity, however large.*—This is what has been generally termed a Hydrostatical Paradox; and from this principle it follows, that a given quantity of water may exert a force several hundred times greater or less, according to the manner in which it is employed. This force depends on the *height* of the column of water, independent of its quantity: for its *pressure* depends on its perpendicular height. By means of water conveyed through a very small perpendicular tube, of great length, a very strong hogshead has been burst to pieces, and the water scattered about with incredible force. On this principle the *hydrostatic press*, and other engines of immense power have been constructed.

(3.) *Every body which is heavier than water, or which sinks in it, displaces so much of the water as is equal to the bulk of the body immersed in the water.*—On this principle, the specific gravities, or comparative weight, of all bodies are determined. It appears to have been first ascertained by Archimedes, and, by means of it, he determined that the golden crown of the King of Syracuse had been adulterated by the workmen. From this principle we learn, among many other things, the specific gravity of the human body; and that four pounds of cork will perserve a person weighing 135 pounds from sinking, so that he may remain with his head completely above water.

Hydraulics, which has sometimes been treated as a distinct department of mechanical philosophy, may be considered as a branch of hydrostatics. It teaches us what relates to the *motion of fluids*, and how to estimate their velocity and force. On the principle of this science, all machines worked by water are constructed—as steam engines, water mills, common and forcing pumps, syphons, fountains and fire engines.

III. PNEUMATICS.—This branch of philosophy treats of the nature and properties of the atmosphere, and of their effects on solids and fluid bodies. From this science we learn, that air has *weight*, and presses on all sides, like other fluids; that the pressure of the atmosphere upon the top of a mountain, is less than on the plain beneath; that it presses upon our bodies with a weight of several thousands more at one time than at another; that air can be compressed into forty thousand times less space than it naturally occupies; that it is of an elastic or expansive nature, and that the force of its spring is equal to its weight; that its elasticity is increased by heat; that it is necessary for the production of sound, the support of flame and animal life, and the germination and growth of all kind of vegetables.

These positions are proved and illustrated by such experiments as the following:—The general *pressure* of the atmosphere is proved by such experiments as those detailed in No. 2 of the *Appendix*. The following experiment proves that air is *compressible*. If a glass tube, open at one end, and closed at the other, be plunged with the open end downwards, into a tumbler of water, the water will rise a little way in the tube; which shows, that the air which filled the tube is compressed by the water into a smaller space. The *elasticity* of air is proved by tying up a bladder, with a very small quantity of air in it, and putting it under the receiver of an air pump, when it will be seen gradually to inflate, till it becomes of its full size. A similar effect would take place, by carrying the bladder to the higher regions of the atmosphere. On the compression and elasticity of the air, depends the construction of that dangerous instrument, the air-gun.

That it is capable being rarified by heat, is proved by holding to the fire a half blown bladder, tightly tied at the neck, when it will dilate to nearly its full size; and if either a *full blown* bladder, or a thin glass bubble filled with air is held to a strong fire, it will burst. The elasticity of the air is such, that Mr. Boyle, by means of an air-pump, caused it to dilate till it occupied fourteen thousand times the space that it usually does.—That air is necessary to sound, flame, animal and vegetable life, is proved by the following experiments:—When the receiver of an air-pump is exhausted of its air, a cat, a mouse, or a bird, placed in it expires in a few moments, in the greatest agonies. A bell rung in the same situation produces no sound; and a lighted candle is instantly extinguished. Similar experiments prove that air is necessary for the flight of birds, the ascent of smoke and vapors, the explosion of gun-powder, and the growth of plants; and that all bodies descend equally swift in a place void of air; a guinea and a feather being found to fall to the bottom of an exhausted receiver at the at the same instant.

On the principles which this science has established, nave been constructed the air-pump, the thermometer, the barometer, the diving-bell, the hygrometer, the condenser, and various other instruments, which have contributed to the comfort of human life, and to the enlargement of our knowledge of the constitution of nature.

IV. Acoustics—This science treats of the nature, the phenomena, and the laws of *sound*, and the theory of musical concord and harmony. From the experiments which have been made on this subject, we learn, that air is essential to the production of sound; that it arises from *vibrations* in the air, communicated to it by vibrations of the sounding body; that these vibrations, or aerial pulses, are propagated all around in a spherical undulatory manner; that their density decreases, as the squares of the distances from the sounding body increase; that they are propagated together in great numbers from different bodies, without disturbance or confusion, as is evident from concerts of musical instruments; that water, timber and flannel, are also good conductors of sound; that sound travels at the rate 1,142 feet in a second, or about thirteen miles in a minute; that the softest whisper flies as fast as the loudest thunder; and that the utmost limits, within which the loudest sounds, produced by artificial means, can be heard, is 180 or 200 miles; that sound striking against an obstacle, as the wall of a house, may, like light, be reflected, and produce another sound, which is called an *echo;* and that, after it has been reflected from several places, it may be collected into one point or focus, where it will be more audible than in any other place. On these principles, whispering galleries, speaking trumpets, and other acoustic instrument are constructed.

V. Optics.—This branch of philosophy treats or vision, light, and colors, and of the various phenomena of visible objects produced by the rays of light, reflected from mirrors, or transmitted through lenses. From this science we learn, that light flies at the rate of nearly twelve millions of miles every minute—that it moves in straight lines—that its particles may be several thousands of miles distant from each other—that every visible body, emits particles of tight from its surface, in all directinas—that the particles of light are *exceedingly small;* for a lighted candle will fill a cubical space of two miles every way with its rays, before it has lost the least sensible part of its substance; and millions of rays, from a thousand objects, will pass through a hole not larger than the point of a needle, and convey to the mind an idea, of the form, position, and color of every individual object—that the intensity, or degree of light decreases as the square of the distance from the luminous body increases; that is, at the two yards distance from a candle, we shall have only a fourth part of the light we should have at the distance of one yard; at three yards distant, the ninth part; at four yards distant the sixteenth part, and so on—that glass *lenses* may be ground into the following forms: *plano convex*, *plano concave*, *double convex*, *double concave*, and *meniscus*, that is, convex on one side and concave on the other—that specula or mirrors, may be ground into either a spherical, parabolical, or cylindrical form—that, by means of such mirrors and lenses, the rays of light may be so modified as to proceed in a *diverging*, *converging*, or *parallel* direction, and the image of visible objects represented in a variety of new *forms*, *positions*, and *magnitudes*—that every ray of white light may be separated into seven primary colors: *red*, *orange*, *yellow*, *green*, *blue*, *indigo*, and *violet*—that the variegated coloring which appears on the face of nature is not in the objects themselves, but in the light which falls upon them—that the *rainbow* is produced by the refraction and reflection of the solar rays in the drops of falling rain—that the rays of light are refracted, or bent out of their course, when they fall upon glass, water, or other mediums—that the light of the sun may be collected into a point or focus, and made to produce a heat more intense than that of a furnace—that the rays from visible objects, when reflected from a concave mirror, converge to a focus, and paint an image of the objects before it, and that when they pass through a convex glass, they depict an image behind it.

On these and other principles demonstrated by this science, the camera obscura, the magic lantern, the phantasmagoria, the kaliedoscope, the heliostata, the micrometer—spectacles, opera glasses, prisms, single, compound, lucernal, and solar microscopes, reflecting and refracting. Idescopes, and other optical instruments, have been constructed, by means of which the natural powers of human vision, have been wonderfully increased, and our prospects into the works of God extended far beyond what former ages could have conceived.—*Dick.*

He is the most powerful who can govern himself.—*Sen.* Self-command is often beyond the reach of even those who have had the address to obtain the command over other men, and to rule nations by their will.

WINTER EVENINGS.

Winter evenings are seasons for domestic comfort, mental application and sociality in New-England. They are delightful periods of time. Where the rude blast is heard without, and the storm beats against the snug casement, and bright fire-side reveals its substantial joys. They are not fictitious ones. The mind participates in the little comforts the body feels, and they go on in harmonious action together. These evenings should be the means of great and permanent good to the young. They should not be passed in sluggish and criminal action. They should not be frittered away in listless idleness, accumulating nothing, but squandering inestimable treasure.

We designed simply to urge upon young men the improvement of these precious periods in their existence. They are pregnant with important results, moulding the character and impressing the mind with what will sink them in mature life or elevate them to positions of influence and respectability in society. Much, very much, may be accomplished by mental application, after the labors of the field or work shops are closed. The body may be weary and the limbs tire, but the mind is still vigorous and feels nothing of lassitude or exhaustion. Apply it then every evening to a settled pursuit, to some practical study. Let not idle pretences or frivolous amusements deduct from what will insure you an honorable position in society. Young men commit an act of criminal injustice to themselves, who are content with the performance of a daily task at the bench or in the field. They should remember that the mind rather than the body, demands of them diligent care as well as assiduous cultivation.—*Northampton Courier.*

Power is maintained, more certainly by mild and prudent counsels, than by harsher measures.—*Tacit.* Conciliatory government combined with vigilence, is more likely to be a prop to power, than any system of violence or severity, which must produce irritation and discontent.

Chastity once tarnished can be restored by no art.—*Lat.* This admirable reflection should be engraven on the female mind, for when the female reputation is once sullied, no time, no repentence, can restore its lustre, or re-establish its purity.

RECEIPTS, from Nov. 25 to Jan. 20, inclusive.—Nos. under 10 not noticed.

*Augusta,	Geo.	77	*Flushing, L. I.		44	N. Smithfield,	Pa.	11
*Branchport, Yates,		13	Georgetown, D. C.		55	*Newark,	O.	70
*Broadalbin, Mont.		50	Green, Chen.		13	New-Haven,	Ky.	11
*Baltimore,	Md.	125	*Gaylord's Bridge, Ct.		20	New-Bedford,	Mass.	44
Bethel,	Vt.	15	Galena,	Wisc	25	New-Milford,	Ct.	17
*Boston,	Mass.	87	Harrison,	Va.	33	New-Alsted,	N.H.	17
*Chestertown,	Md.	22	Huntsville,	Ala.	36	*New-Market,	Va.	77
*Chaptico, C.H.	Md.	13	*Hartford,	Ct.	26	*Philadelphia,	Pa.	258
*Culpepper,	Va.	22	Hereford,	Md.	11	Peekskill, Westch.		66
*Charlottesville,	Va.	44	*Ionia,	Mich.	67	*Richmond,	Va.	189
Columbus,	O.	20	*Jeffersonton,	Va.	40	*Richmond. Rich.		31
*Charlton, Sara.		21	*Knoxville,	Ten.	22	*Rocky Hill;	Ky.	33
Dunnsville,	Va.	33	*Lake, C.H.	Ia.	33	*Suffolk,	Va.	66
Durrettsville,	Va.	11	La Grange,	Geo.	11	*Sandisfield,	Mass.	35
*Ellsworth,	O.	27	Louisville,	Ky.	11	*St. Catharines, U.C.		46
*Easton,	Pa.	26	Lancaster, C.H.	Va.	11	*Shrewsbury,	N.J.	30
*Enfield,	Ct.	21	*Lansingburgh, Ren.		58	Shawangunk, Ulst.		11
*E. Bloomfield, Ont.		15	Mayfield,	Va.	22	*Utica, One.		112
*Edwardsburgh, Mic.		17	*Mechanicsville,	Va.	22	*Worcester,	Mass.	17
*Friendship,	Md.	46	*New-York,		254	Wheeler, Steu.		11
*Five Corners, Cay.		33	Nashville,	Tenn.	15			

Total number of volumes subscribed for during last two months, 1072.

* Including former payments.

PRICE CURRENT.

ARTICLES.	New-York. Jan. 21.	Boston. Jan. 19.	Philadel'a Jan. 18.	Baltimore. Jan. 16.
Beans white, bush........	2 00.. 2 25	1 12..12 25	1 ..1 12	1 25..1 50
Beef, best, cwt...........	11 00..13 50	5 75.. 7 00	7 50..9	6 00..7 25
Pork, per cwt............	8 00..10 00	7 00.. 9 00	7 50..	7 00..
Butter, fresh, pound, ...	16.. 20	20.. 25	12.. 13	20.. 25
Cheese, pound, ...	7.. 10	8.. 9	9.. 10	9.. 10
Flour, best, bbl......	8 75.. 8 25	8 87.. 9 00	8 75..	11 ..12
Grain—Wheat, bushel, ..	1 62.. 1 75	....	1 60..1 70	1 90..2 00
Rye, do. ..	1 12..	1 25.. 1 30	1 00..1 12	90.. 95
Oats, do. ..	50.. 53	52.. 55	50.. 53	37.. 38
Corn, do. ..	1 12.. 1 13	94 00..98 00	1 02..1 03	75.. 78
Seeds—Red Clover, lb...	10 11	15.. 16	10.. 11	12.. 13
Timothy, bushel,.	1 82.. 2 00	2 75.. 3 00	3 25..2 00	3 50..4 00
Wool—Saxony, fleece, lb.	45... 50	50.. 55	65.. 73	40.. 50
Merino, lb..... .	35.. 40	45.. 47	46.. 48	35.. 40
1-4 and com. lb...	25.. 28	33.. 38	..33 36	28.. 30
Sheep, ...	2 50.. 5 00	1 67.. 3 00		40.. 50
Cows and Calves, ...	80	23 00..42 00		35.. 40
Cotton,..........	9.. 13	....	9.. 14	11.. 12

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN

CULTIVATOR ADVERTISER.

ALBANY NURSERY.—The usual stock of fruit trees, ornamental trees and shrubs, and a general assortment of favorite green-house plants, are kept constantly for sale. Orders from any part of the Union, with due references, or money enclosed, will be carefully executed, and trees and plants packed in a secure manner.

The proprietors imported last spring from London, some thousands of PEAR Trees, embracing the esteemed new Flemish varieties; and also, some thousands of PLUM Trees, of the best varieties. These trees having grown last summer, and become furnished with an abundance of fibrous roots, are now in good condition for transplanting.

They also made large additions to their stock of ROSES and DAHLIAS, and their collection in these is now very extensive, and the varieties of choice Dahlias of the first class will be sold at $5 the dozen; of the second class at $4; and of the third class at $3 the dozen, all double flowers.

Feb. 1, 1838. J. BUEL & CO.

SUPERIOR GARDEN AND AGRICULTURAL SEEDS.—The subscriber has now on hand a full supply of Garden and Field Seeds, growth of 1837, among which are all the finest Cabbages, Cauliflowers, Brocolie, Radishes, Peas, &c. that are cultivated in England, France and Holland, together with every sort that can be raised to advantage in our own country, and which are grown expressly for my use from stock furnished and raised by the most experienced gardeners in this country; in short, every article emanating from my store, warranted genuine and fresh.

Also, Skinless Oats, Potato Oats, 44 lb. weight to the bushel, Perennial Rye Grass, White Clover, Lucerne or French Clover, Orchard Grass, Herd's Grass, White Mulberry, and Yellow Locust Seeds, Spring Tares or Vetches, genuine Mangold Wurtzel, and Ruta Baga and Field Turnip Seeds, also Italian Spring Wheat, well worth the attention of farmers.

Wholesale dealers supplied on accommodating terms. Price lists, by the pound and bushel, furnished on application, as also catalogues of my whole collection, gratis.

Orders will be punctually attended to and carefully packed and forwarded as directed, but as the collection of distant debts are often troublesome, and sometimes impracticable, it is desired that satisfactory reference be made to persons in Albany, when the order is not accompanied with the money.

☞ Also, Seed Corn.—The subscriber has a quantity of the celebrated 12-rowed Dutton Corn. The advantages of raising this corn are its prolific qualities, being easily made to yield from 70 to 80 bushels to the acre, and its early maturity, ripening in about 100 days from time of planting.

W. THORBURN, Seedsman,

Sign of the Plough, 317 N. Market-st. opposite Post Office, Albany.

CHOICE STOCK.—The subscriber offers for sale four full bred "Improved Durham Short Horned" bulls, from one to three years old. One cow and three heifers from one to five years old.

The above animals are of pure blood and high pedigree—are descended from the celebrated herds of Mr. Wetherell, Champion, Whitaker and White, England.

Sheep.—2 choice South Down bucks; 4 Bakewell's do.; 8 Merino's do. And a few buck and ewe lambs, of the cross of South Down and Bakewell.

Pigs.—One boar and two sows, six months old, of the pure Berkshire breed, and a "lot" of Birkshire pigs are *expected* in the spring.

C. N. BEMENT.

Three Hills Farm, Albany, N. Y. 1838.

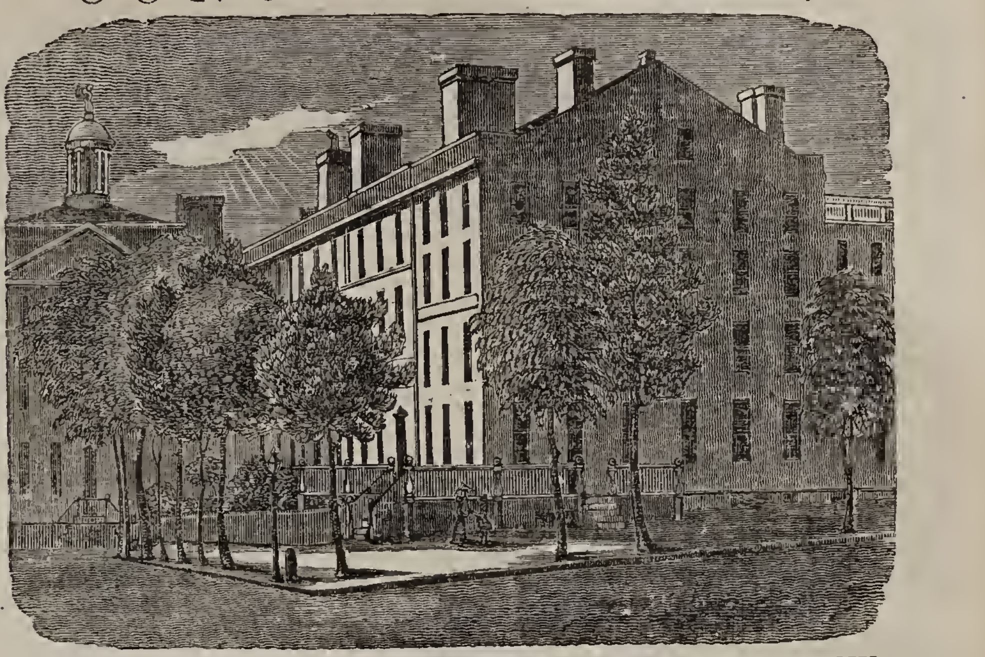
DURHAM BULL.—For sale by the subscriber, a full bred Durham bull, three years old, very fine. MATTHEW BULLOCK.

New-Scotland, January 25th, 1838, }
Albany co. New-York State. }

STILLMAN'S PATENT SAW-SET.—That highly approved article is for sale by E. Corning & Co. Cagger & Francis, Albany; Geo. H. Gray & Co. Boston; Smith, Starr & Co. Hubbard & Casey, Pettibone & Long, New-York; Sanger & Benedict, J. Dana & Co. Utica; H. B. Hall & Co. Philadelphia; Stickney & Noyes, Baltimore, Md.; and in numerous other places.

A. STILLMAN.

CONGRESS HALL,



PARK PLACE, CORNER OF WASHINGTON-STREET, ALBANY.

THIS establishment is much the largest in the city, and is altogether unrivalled in location: commanding from the front a beautiful view of the Hudson river for the distance of several miles to the south end of the city, and country to the north as far as the eye will reach. The subscriber, thankful for the very liberal patronage which has been bestowed on him, hopes, by strict attention to the wants of his guests, a continuation of their patronage.

W. LANDON.

EXTENSIVE SALE OF IMPORTED STOCK—At the Old Norton Farm, East Bloomfield, five miles west of Canandaigua, Ontario county, New-York.

Numerous applications having been made to purchase this stock, the proprietor has concluded, that in order to afford a fair opportunity to those who have already made inquiries and others desirous of obtaining the breed to offer the same at PUBLIC AUCTION, on Wednesday the 2d of May next, on which day will be sold twenty Improved Durham Short Horns, bulls, cows and heifers of various ages. Amongst the former is the famous bull "Rover," which was bred by the Earl of Carlisle, got by Rockington, dam, (Cherry) by Wonderful, gr. dam by Alfred, &c. &c. Rockingham was by Fairfax, dam, (Maria) by Young Albion; gr. dam, (Lady Sarah) by Pilot; gr. gr. dam by Agamemnon. Also, Alexander, Orion, Splendor and others. And of the cows and heifers, Beauty, Primrose, own sister to Reformer, Prize, Lady Bowen, Brilliant, &c.

Three full blooded mares and one three year old stud colt, of pure racing breed, viz:—Brown mare Falconet, by Falcon, dam by Catton, (Hindcliff's dam) Hannah by Sorceror Amelia, &c.

Bay mare Miss Andrews, sister to Caroline, by Catton, dam by Dick Andrews; her dam by Sir Peter; Play or Pay's dam by Herod, &c.

Chestnut mare Jessica, by Velocipede, dam by Sancho; gr. dam Blacklock, and Theodore's dam.

Bay stud colt, Humphrey Clinker, by Allen's Humphrey Clinker, dam Miss Andrews, &c.

The well known stud horse Turk and Alfred, whose stock for the two seasons they have stood is unsurpassed.

Likewise about 20 rams and a few ewes of the imported New Leicester breed of sheep. These are chiefly from a ram belonging to the celebrated breeder Sir Tatton Sykes, for which he paid 300 guineas.

The whole of the above stock were selected from the highest order of blood in England by their present owner, who imported it direct to this country, and can be recommended as worthy the notice and confidence of breeders.

Pedigrees may be had on, or previous to the day of sale, and further information obtained on application to THOMAS WEDDLE.

East Bloomfield, 1st January, 1838.

N. B. The terms of payment will be liberal to those who wish.

EAGLE TAVERN, ALBANY.—The subscriber, formerly of the Eagle Tavern, at Rochester, having become the proprietor of the Albany Eagle, (late Cruttenden's,) tenders his thanks to his old friends and patrons at Rochester, and invites them to renew their calls upon him here. He also respectfully invites a continuance of the patronage of the old friends of the Albany Eagle; promising to all, his best exertions to make his house worthy of the liberal support which it has always enjoyed. The Eagle has received such repairs and furniture as were required, and is now open for the reception of company. H. H. CRANE.

January 26, 1838.

MANSION HOUSE, ALBANY.—We take the liberty to advertise the public, and particularly strangers from the south and west, that we have taken the above establishment, well known as one of the oldest and most respectable stands in the state; and intend to make it equal to the best establishments in the state. In soliciting public patronage, we will only say, that we will try to merit it by a close attention to the wants and comforts of the company who may please to favor us with their patronage. WOOD & LATHROP.

January 22, 1838.

AMERICAN HOTEL, 100 State-street, Albany, N. Y.—This extensive establishment is the most conveniently situated in Albany, being about 150 yards from the Mohawk and Hudson rail-road, and in the immediate vicinity of the public offices. The proprietor will not relax in his exertions to maintain the reputation of his house in every respect.

J. THOMAS.

MEACHAM & CO. Piano Forte Manufacturers. Importers and manufacturers of all kinds of Military Equipments, No. 84 State-st. Albany, N. Y.

HARDWARE.—PRUYN, WILSON & VOSBURGH, No. 39 State-st. are receiving continually by the arrivals from Europe, their importations of English, French and German goods, comprising a large and general assortment of hardware, cutlery and fancy goods; also, a full assortment of Russia, Swedes, English and American bar iron, nail rods, cast, German and American steel, wrought and Peru cut nails, etc. all of which they offer on reasonable terms.

AGENTS FOR THE CULTIVATOR.

List of Agents for the Cultivator.

We select the following names, principally from correspondents who have voluntarily and most efficiently aided us in the circulation of the CULTIVATOR, and to whom we tender our most grateful acknowledgments. We hope we are not tresspassing too far, in naming them as Agents for our fifth volume. The desire to improve the condition of our agriculture, the great business of the nation, which prompted them to begin a good work, we trust will induce them to continue to co-operate with us in carrying it on. Without arrogating personal merit, we hesitate not to say, that the CULTIVATOR has done a vast amount of good towards improving our husbandry, and that its continued circulation, with that of cotemporary agricultural periodicals, is calculated to add millions annually to our productive industry, which every citizen has a deep interest in effecting. By publishing the following list, we by no means wish to confine our agency to the gentlemen named; but we invite others, and particularly post-masters, to co-operate with them and us. Every person is virtually an agent who sends us ten subscribers, free of charge, and is entitled to every eleventh copy, or its equivalent, for his trouble.—The great object of the post-office establishment is, to accommodate the public. The circulation of agricultural periodicals does this, and at the same time augments the revenues of the department. February 1, 1838.

MAINE.

Centre Montville,	J. Bean, p. m.
East Bethel,	T. Carter, p. m.

NEW-HAMPSHIRE.

Bath,	S. Patterson,
Charlestown,	G. W. Sumner, p. m.
Danbury,	S. Pillsberry, p. m.
Keene,	J. Elliott,
Lisbon,	O. S. Hollister, p. m.
Newport,	P. Kimball,
New Alsted,	E. Bidwell, p. m.
Newington,	W. N. Nutter,
Oxford,	J. W. Evans,
PORTSMOUTH,	R. Ketredge,
Sullivan,	D. J. W. Wardell, p. m.
Walpole,	J. Bellows, p. m.
Westminster,	B. Skinner, p. m.

VERMONT.

Bethel,	J. Smith, jr. p. m.
Barnard,	J. Smith,
Bridgewater,	S. Southgate, jr. p. m.
Brandon,	O. S. Muzzy,
Bennington,	A. Haswell,
Burlington,	G. P. Marsh,
Chelsea,	J. Stearns, p. m.
Castleton,	J. Meacham,
East Roxbury,	L. Thompson,
East Bethel,	P. Carter,
East Rutland,	P. J. Ormsby, p. m.
Fairhaven,	B. Ellis,
Greensborough,	J. Pomeroy,
Georgia,	J. Taylor,
Grafton,	S. Kidder,
Hartland,	P. Cotton, p. m.
Leicester,	J. G. Perry,
MONTPELIER,	G. P. Walton,
Middlebury,	E. W. Drury,
Newbury,	P. Knight, p. m.
North Hartland,	J. Daniels, p. m.
N. Bennington,	W. R. Martin,
Northfield,	O. Averill, p. m.
Passumpsic,	L. P. Parks, p. m.
Pittsford,	W. Beals,
Queechee village,	J. Dimick, p. m.
Randolph,	T. M'Intyre,
Richfield,	J. Woodruff,
St. Albans,	M. F. Palmer,
Sheldon,	S. P. Sheldon, p. m.
Starksborough,	J. Bailey,
Shaftsbury,	J. M. Olin,
Thetford,	T. Kendrick, p. m.
Union,	B. Bradley, p. m.
Union village,	M. J. Walker, p. m.
Vergennes,	W. R. Bixby, p. m.
Westford,	O. Lawrence,
Woodstock,	J. A. Pratt,
Westminster,	W. R. Clapp,
Westfield,	H. Richardson, p. m.
West Alburgh,	W. H. Lyman, p. m.
Williston,	R. Bradley.

MASSACHUSETTS.

Ashfield,	E. Williams, 2d.
Braintree,	B. V. French,
BOSTON,	C. M. Hovey, & Co.
Bernardstown,	G. Ryther, p. m.
Cummington, east vill.	V. Daws,
Colerain,	J. Drury,
Conway,	C. Arms, p. m.
Dalton,	D. Carson,
Deerfield,	C. Williams, p. m.
East Hampton,	W. Lyman,
East Longmeadow,	W. Lathrop, p. m.
Framingham,	M. Fisk,
Granby,	W. Belcher, p. m.
Howard,	J. P. Whitcomb,
Hatfield,	A. Langley, p. m.
Hadley, Upper Mills,	T. P. Huntington,
Lee,	H. Bartlet, p. m.
Lenox,	G. Walker,
Middlefield,	D. Alderman,
Medford,	L. Angier, p. m.
New-Bedford,	G. Randall,
Northampton,	P. Shepherd, p. m.
New Marlborough,	W. Wheeler, p. m.
Nantucket,	R. P. Parker,
Pittsfield,	S. Colt.
Pembroke,	H. Collamore, p. m.
Sherburne,	Z. Hooker,
South Egremont,	N. H. Bills, p. m.
Sheffield,	E. F. Ensign. p. m.
Springfield,	A. Morgan, p. m.
Sandisfield,	J. M. Sears,
Tyngsboro,	D. Richardson, p. m.
West Springfield,	H. Cooley, p. m.
Warwick,	W. Cobb, p. m.
Westfield,	L. Smyth,
Williamsburgh,	H. Nash,
Willimansett,	W. L. Bemis,
Wilbraham,	S. Leech,
Westborough,	J. Fay,
Worcester,	W. N. Greene.

CONNECTICUT.

Bridgeport,	B. M. Smith,
Bristol,	N. P. Matthews,
Berlin,	J. M. Plumb, p. m.
Bloomfield,	J. H. Hubbard, p. m.
Brooklyne,	A. White, p. m.
Canton,	J. Mills, p. m.
Coventry,	I. Brown, p. m.
Cheshire,	B. D. Doolittle,
Canterbury,	J. Johnson,
Danbury.	R. Hoyt, p. m.
Durham,	A. Robinson, p. m.
Enfield,	G. Terry, p. m.
East Windsor,	E. Ellsworth,
East Hartford,	S. Olmstead,
Farmington,	S. Whitman, p. m.
Goshen,	M. Bartholomew, p. m.
Guilford,	R. Ellicott, p. m.
Hadlyme,	W. Spencer,
HARTFORD,	G. Wells, p. m.
Lebanon,	L. Hibbard,
Litchfield,	J. Buel,
Lisbon,	M. Safford,
Mansfield,	P. Burrows,
Madison,	J. R. Wilcox, p. m.
Manchester,	S. Lyman,
Middlebury,	L. Townsend, p. m.
Norwalk,	J. Benedict, p. m.
Naugatuck,	J. D. Meers, p. m.
New Canaan,	A. D. Pennoyer,
New Britain,	T. Lee, p. m.
Norwich town,	H. Harland, p. m.
New Milford,	O. Merwin,
North Haven,	W. Hartley,
Plymouth,	C. Butler,
Pomfret,	J. P. Payson,
Stonington,	W. C. Woodbridge,
Salisbury.	C. Benham, p. m.
Stanwich,	C. Hartland, p. m.
Stratford,	D. Brooks, p. m.
Sharon,	H. Brown, p. m.
Torringford,	L. Smith, p. m.
Vernon,	L. P. Jenks,
West Hartford,	J. Whitman, p. m.
Watertown,	A. Bryan,
Westminster,	P. Spicer, p. m.
Wallingford,	J. W. Carrington,
Weathersfield,	J. Goodrich, p. m.
Windham,	W. Williams, p. m.
Wilton,	S. F. Lambert, p. m.

RHODE-ISLAND.

PROVIDENCE,	T. Burgess,
Warwick,	B. R Greene.

NEW-JERSEY.

Byberry,	J. Thornton,
Bevans,	J. C. Bevans, p. m.
Belvidere,	A. S. Easton,
Cinnaminson,	C. Gillingham,
Crosswicks,	R. Vanderbeck,
Cranberry,	A. Shaw, p. m.
Camden,	J. Dickerson, p. m.
Deckertown,	J. Fitsworth,
Flemington,	J. Callis, p. m.
Freehold,	W. Lloyd, jr. p. m.
Greenwich,	B. Sheppard,
Hackensack,	D. D. Demarest, p. m.
Hacketstown,	D. M. Stiger, p. m.
Hope,	P. Cook,
Johnsonsburgh,	R. Byington,
Kingston,	J. B. Tithrugh,
Kingwood,	F. Tomlinson, p. m.
Lawrenceville,	W. Bowker,
Mraksborough,	J. Blair, p. m.
Middletown,	W. Murray, p. m.
Mendham,	J. F. Morris,
Metuchen,	J. G. Hall,
Millstone,	J. S. Annin,
New-Brunswick,	W. Myers, p. m.
Newton,	G. H. M'Carty, p. m.
New Egypt,	G. F. Foot, p. m.
Pennington,	A. P. Willing,
Rahway,	H. H. Brown,
Rockaway,	J. H. Jackson,
Swedesborough,	P. Bowers,
Shrewsbury,	R. White, jr.
Suckasunny,	W. Patterson,
Somerville,	W. J. Hughes, p. m.
Sculltown,	S. Bolton,
Titusville,	J. Titus,
TRENTON,	J. Cunningham, p. m.
Woodhull,	J. Hill, p. m.

PENNSYLVANIA.

Athens,	L. L. Ellsworth, p. m
Abington,	C. C. Beatty,
Brown's Mills,	J. Norris, p. m.
Bethany,	P. Bushnell,
Birdsfield,	W. A. Vickery,
Connelsville,	J. Herbert,
Concordville,	J. Trimble,
Canton,	J. Cummings, p. m.
Coffee Creek,	H. Jackson, p. m.
Easton,	E. S. Evans,
Exeter,	D. Harding & L. Jones, p. m.
Elkland,	J. Parkhurst, p. m.
Frankfort,	A. Knox, p. m.
Factoryville,	J. Wilson, p. m.
Fairfield,	J. Reed,
Harbor Creek,	T. Hunt,
HARRISBURGH,	A. Bombaugh,
Lewisburgh,	J. F. Linn,
Lewiston,	E. L. Bennet,
Mauch Chunk,	S. Lippincott,
Milton,	J. Ketcham,
Meadville,	D. Andrews, p. m.
New Holland,	R. Deller,
North Smithfield,	J. E. Hale,
New Berlin,	J. Merrill,
Northeast,	J. M'Cord, 2d.
Peach Bottom,	J. Webb,
Pottsville,	B. Baunau,
Pittsburgh,	O. P. Shires,
PHILADELPHIA,	J. Dobson, D. Landreith,
Reading,	S. Ritter, p. m.
Shrewsbury,	J. Koller, p. m.
Selin's Grove,	H. W. Snyder,
Stockport,	S. Preston, p. m.
Scottsville,	H. Scott, p. m.
Sylvania,	R. Nash, jr. p. m.
Shepherdstown,	D. Sheffer, p. m.
Sewickly Bottom,	D. Shields, p. m.
Williamsburgh,	J. R. Hewitt,
Zelienople,	E. Metz.

DELAWARE.

Camden,	S. Dixon, p. m.
Frederica,	J. E. Price, p. m.
Delaware city,	W. Reybold,
Laurel,	C. Ross,
Lewes,	J. L. Rodney,
Milton,	J. Ponder, p. m.
Milford,	C. Mason, p. m.
St. George,	J. S. Sutton,
Smyrna,	B. Benson.

AGENTS FOR THE CULTIVATOR.

MARYLAND.

ANNAPOLIS,	A. Cowan,
Bladensburgh,	H. Perine,
Bellair,	A. Dempsey,
BALTIMORE,	G. B. Smith, G. W. Thomas,
Brockville,	P. M'Cormick,
Centreville,	J. Tilghman,
Cambridge,	E. P. Lecompte, p. m.
Cecilton,	C. C. Murphy,
Clear Spring,	R. Wilson,
Chaptico,	J. Briscoe,
Church Hill,	V. W. Devorix, p. m.
Chestertown,	T. Baker,
Denton,	W. Bailey, p. m.
Darnestown,	L. W. Chandler, p. m.
Easton,	W. Thomas, p. m.
Emmetsburgh,	J. Shields,
Frederick,	J. H. Williams,
Friendship,	R. S. D. Jones, p. m.
Georgetown ✕ Roads,	J. P. Dunbar,
Govanstown,	J. W. Ward,
Great Mills,	H. N. Kirk, p. m.
Hagerstown,	J. Dorsey,
Hereford,	W. B. Merryman, p. m.
Kingsville,	G. King, p. m.
Laurel Factory,	P. Jenkins,
Leonardstown,	J. Spalding, p. m.
Newton,	J. S. Stevenson, p. m.
Oakland Mills,	M. Glacley,
Port Deposite,	A. Anderson, p. m.
Port Tobacco,	A. Bateman, p. m.
Princess Anne,	W. H. Johnston, p. m.
Piscataway,	B. J. Simmes,
Pikeville,	J. E. Lyon, J. Smith, p.m.
Queenston,	J. C. Betton,
Rapid Ann,	W. M. Rose, p. m.
Rock Hall,	M. Miller,
Rockville,	S. J. Hamstreet,
Ridge,	W. J. Langley, p. m.
Reisterstown,	S. Henkle,
Sam's Creek,	D. W. Naill, p. m.
St. Ingoes,	C. M. Jones,
St. Michaels,	S. Hambleton,
Savage,	C. P. Miller,
Sandy Springs,	E. Stabler, p. m.
Snow Hill,	G. Hudson,
Smithsburgh,	E. Bishop,
Trappe,	D. Robinson, p. m.
Tarrytown,	H. Shaw,
Upper Marlborough,	W. Bowker,
Vienna,	D. H. Barron,
Yough Glades,	G. Reed.

DISTRICT OF COLUMBIA.

Alexandria,	Bell & Entwisle,
Georgetown,	J. H. King,
Washington city,	Dr. T. P. Jones,
———————	W. H. Ellsworth.

VIRGINIA.

Amherst court-house,	J. A. Stout, p. m.
Bowman's Mills,	J. Bowman, p. m.
Buckland,	C. Hunter,
Burwell's Bay,	W. H. Lane,
Buckingham c. h.	R. B. Shaw, jr. p. m.
Conrad's store,	H. Conrad, p. m.
Christiansburgh,	J. Gardner, p. m.
Charlottesville,	C. J. Merriwether,
Clarkwell,	N. C. Reod,
Charlestown,	J. Howe,
Campbell court-house,	S. Smithson,
Charlotte court-house,	W. W. Allen,
Culpepper court-house,	L. Turner, p. m.
Draper's Valley,	H. Shepperd, p. m.
Dunsville,	W. Bray,
Durrettsville,	T. Oldham,
Eldredville,	J. Harding,
Everettsville,	J. A. Cair,
Fredericksburgh,	W. Pollock,
Fork Inn,	W. Sutherland, p. m.
Fairfax court-house,	C. H. Patterson,
Front Royal,	S. Ruice, J. S. Spengler,
Fincastle,	C. Anspaugh,
Garysville,	R. Harrison,
Glade Springs,	W. Byars,
Hempstead,	J. S. Washington,
Huntersville,	J. A. Price,
Hambaughs,	J. S. Spengler,
Heathville,	J. L. Lumpkin,
Harrisonburgh,	J. Hardesty,
Jennings' Ordinary,	W. W. Roberts,
Johnson's Springs,	E. Valentine, p. m.
Jeffersonton,	Dr. P. B. Bowen,
Jacksonville,	E. A. Halloway,
King George c. h.	W. Colton, p. m.
Kite's Mills,	J. Kite, p. m.
Lancaster, C.H.	S. Downing, p. m.
Libertys,	R. Parker, p. m.
Leesburgh,	G. Richards,
Lindsay's Store,	J. A. Perkins,
Lynchburgh,	J. Gardner, p. m. M. Davis, jr.
Loretto,	J. Saunders, jr. p. m.
Low Hill,	J. Dulin,
Liberty Mills,	E. S. Barbour,
Lovington,	C. P. Estes,
Milwood,	J. F. Nelson,
Montpelier,	H. Leadbetter, p. m.
Mayfield,	W. Holman, p. m.
Mattox Bridge,	W. H. Triplett, p. m.
Mechanicsville,	J. C. Harris,
New Store,	J. Mosely, p. m.
Norfolk,	A. Truesdell,
Nuttsville,	J. A. Carter, p. m.
Newbern,	J. Raines,
New Market,	S. Henkle, p. m.
Orange court-house,	J. C. Harris,
Office Tavern,	J. J. Leigh, p. m.
Pattonsburgh,	J. Crews, p. m.
Powell's Tavern,	J. E. Woodward,
Pedlar's Mills,	E. Wortham,
Prospect,	R. M. Davis,
Roso Mills,	D. Warwick,
Rumford's,	W. Pollock,
RICHMOND,	B. Peyton, S. & R. Hill.
Scott's Ferry,	G. W. Lowis,
Subletts' Tavern,	W. Subletts, p. m.
Stony Point Mills,	C. P. Boudinant,
Salem,	J. Baker,
Suffolk,	A. Smith, p. m.
Surry court-house,	J. L. Dick,
Staunton,	H. Losey,
Strasburgh,	J. S. Spengle, W. S. Newell,
Stone Wall Mills,	W. H. Plunket, p. m.
Slade Springs,	W. Byers,
Trogman's Store,	J. B. Peck,
Virginia Mills,	E. W. Simm, p. m.
Union Mills,	B. H. Magruder,
Whitestone,	J. Armstrong,
Wellsburgh,	P. M'Carty, p. m.
Warminster,	R. C. Morris, p. m.
Waynesborough,	A. Linn, p. m.
Wilmington,	B. M. Jones, p. m.
Warrenton,	J. Scott,
Winchester,	J. M. Mason,
Warren,	A. M. Appling. p. m.

OHIO.

Ashtabula,	M. Hubbell, p. m.
Berlinville,	J. Otis, p. m.
Circleville,	A. S. Chew,
Colerain,	J. Vickers,
Caynhoga Falls,	J. S. Richardson,
Chillicothe,	N. Sawyer, p. m.
Cincinnati,	S. C. Parkhurst,
Columbus,	I. S. Van Vechten,
Dayton,	D. Cathcart, p. m.
Damascoville,	C. Haines, J. B. Bruff, p.m.
Dover,	J. Dougherty,
East Fairfield,	R. Craig, p. m.
Ellsworth,	J. W. Leffingwell, p. m.
Franklin Mills,	G. B. De Peyster, p. m.
Franklin,	O. H. Schenck,
Gallipolis,	F. Le Clary, p. m.
Genoa,	E. Mills, p. m.
Hillsborough,	R. D. Lilly, p. m.
Hartford,	R. Walker, p. m.
Kellogsville,	S. S. Bushnell,
Kirtland's Mills,	A. Harrison,
Lebanon,	P. F. Antes,
Morgan,	R. Paine,
Muskingum,	G. West,
Maumee city,	C. P. Hunt, p. m.
Milan,	G. H. Darling,
Madison,	J. Tower,
Mentor,	J. J. Clapp,
Moore's Salt Works,	J. George, p. m.
Newark,	J. Dille,
Painesville,	B. Adams, p. m.
Putnam,	H. Nye,
Penfield,	T. Penfield, p. m.
Point Pleasant,	H. L. Thompson,
Richmond,	H. Crew, p m.
Salem,	J. Goldsborough, p. m.
Scipio,	J. Maynard, p. m.
Uniontown,	D. Hawley, p. m.
Waterville,	D. B. Taylor,
York,	H. R. Adams,
Yellow Springs,	J. Alexander.

MICHIGAN.

Ann Arbor,	C. Thayer, p. m.
Andover,	J. Gardner, p. m.
Adrian,	A. S. Comstock, p. m.
Brookline,	E. O. Lo is, p. m.
Bellevue,	C. Woodbridge,
Berodino,	R. Root, p. m.
Buck,	J. Smith,
Comstock,	A. Spilan,
Centreville,	A. Burrell,
Dexter,	N. H. Wing, p. m.
Detroit,	S. T. Buel,
Edwardsburgh,	L. Humphrey,
Goodwinsville,	J. Goodwin, p. m.
Highland,	E. Leek, p. m.
Ionia,	E. Yeomans, p. m.
Lyons,	J. W. Taber,
Marshall,	C. D. Smith, p. m.
Pine-Lake,	E. M. Stickney,
Riders,	J. Riders, p. m.
St. Joseph,	J. Enos,
Sylvan,	D. Boyco,
Spring-Arbor,	W. Smith, p. m.
Smithfield,	E. J. Mott,
Saganaw,	L. Wellington,
Tecumseh,	J. C. Boughton, p. m
Ypsilanti,	N. Morris, p. m.

INDIANA.

Annapolis,	J. Moulder,
Bennett's Creek,	J. W. Thale,
Bristol,	H. H. Fowler, p. m.
Crawfordville,	J. C. Elston, p. m.
Eugene,	J. R. Porter.
Fort Wayne,	L. G. Thompson,
Kendallsville,	W. Mitchell, p. m.
Lake court-house,	S. Robinson, p. m.
Liberty,	S. M'Collough, p. m.
La-Porte,	A. M. Harrison, p. m.
La Fayette,	J. W. Halliday,
Mishawaka,	J. J. Dunning,
Madison,	G. Fitzhugh,
Noblesville,	J. D. Stevens, p. m.
Newtown,	J. H. Jenks, p. m.
New Harmony,	L. Gex, p. m.
New Albany.	D. Hedman,
Petersburgh,	J. M'Intyre, p. m.
Reserve,	H. L. Doubleday,
Rochester,	A. Hadley,
Rockford,	J. Wheeler, p. m.
Spencer,	W. N. Fain,
Saundersville,	S. H. Hornbeck,
Terre Haute,	J. Farrington,
Vincennes,	N. Ewing,
Wallace,	E. S. Bacon.

ILLINOIS.

Albion,	J. Tribe,
Bloomington,	F. F. Dean,
Belville,	J. Mitchell, p. m.
Carrolton,	G. S. Magruder,
Carthago,	W. Williams,
Fairfield,	J. Dudley,
Lincoln,	S. Buell, p.m.
M'Comb,	A. Walker,
Monticello,	E. Felt, p. m.
Princeton,	J. M. Gay, p. m.
Pekin,	W. H. Sandusky, p. m.
Ridge Prairie,	C. Churchill, p. m.
Troy Grove,	L. Kelsey, jr.

WISCONSIN TERRITORY.

Cassville,	D. Richards,
Chicago,	A. N. Fullerton, p. m.
Fort Madison,	P. Viele,
Gibraltar,	A. E. Hough, p. m.
Milwaukie,	printer of Gazette,
Pike,	A. H. Otis,
Pleasant Prairie,	A. W. Dimick.

KENTUCKY.

Brandenburgh,	H. P. Byram,
Benevola,	C. T. Chilton, p. m.
Bairdstown,	B. Shaffer,
Bloomfield,	J. Allen,
Elizabethtown,	J. Helm, p. m.
Franklin,	H. B. Montague,
Frankfort,	P. Swygert,
Flemingsburgh,	G. W. Forman,
Glasgow,	J. G. Smith, p. m.
Grass Hills,	G. N. Saunders, p. m.
Hartford,	R. Walker, p. m.

AGENTS FOR THE CULTIVATOR.

Louisville,	W Forrester,
Lexington,	G. W. Sutton,
Millersburgh,	C. Talleot, p. m.
Madisonville,	S. Worden,
May's Lick,	J. Y. Johnson,
Middletown,	R. G. Vance, p. m.
M'Nary's,	H. W. M'Nary, p. m.
New-Haven,	S. Johnson, p. m.
Rocky Hill,	F. Little, p. m.
Shawnee Run,	J. R. Bryant, p. m.
Salina,	W. Forester,
Westport,	G. Armstrong, p. m.
Yelvington,	S. Hawes,

TENNESSEE.

Bolivar,	J. H. Bills, p. m.
Clinton,	J. A. White,
Cave Hill,	G. W. Frost, p. m.
Jackson,	R. I. Chester,
Knoxville,	M. M'Cluness,
Murfreesburgh,	D. Wendel, p. m.
Nashville,	D. Morrison,
Rock-Creek,	J. S. Sutphen, p. m.
Wilkinson's ✕ Roads,	F. E. Beeton, p. m.
Winchester,	W. Estell, p. m.

NORTH-CAROLINA.

Alexandriana,	R. D. Alexander, p. m.
Brinkleyville,	S. Weller, p. m.
Beattie's Ford,	W. B. M'Clain,
Bethany Church,	W. A. Dunlap, p. m.
Crowder's Creek,	L. Wilson, p. m.
Nixon's,	P. Nixon, jr. p. m.
Pantego,	J. J. Latham, p. m.
Sunbury,	W. T. Reddick, p. m.
Trent Bridge,	J. W. Howard.

GEORGIA.

Augusta,	W. J. Hobby,
Athens,	M. A. Ward,
Clarksville,	W. Elliott,
La Grange,	W. Dougherty,
Monroe,	L. Pattitto, p. m.
Petersburgh,	J. D. Watkins,
Red Oak,	W. W. Stone, p. m.
Savannah,	N. P. Crowell,

ARKANSAS.

Hix's Ferry,	J. J. Anthony,
Jackson,	J. B. Hammond, p. m.
Martins,	R. M'Crary.

SOUTH-CAROLINA.

Beaufort,	D. Turner, p. m.
Golden Springs,	D. Spearman. p. m.

MISSOURI.

Far West,	W. W. Phelps,
St. Louis,	Judge W. C. Carr.

ALABAMA.

Courtland,	I. E. Saunders,
Huntsville,	W. Patten.

UPPER CANADA.

Brockville,	W. Buel,
Cornwall,	W. M. Martin,
Dundas,	E. Leslie & Sons,
Lanark,	J. Hall, p. m.
Prescott,	A. D. Dickinson,
St. Catharines,	C. Beadlo,
Toronto,	J. L. Howard, p. m.

LOWER CANADA.

Dundee,	J Davidson,
Montreal,	B. Brewster,
Quebec,	J. Fisher.

WEST FLORIDA.

Pike River,	W. Fawdy.

LOUISIANA.

New-Orleans,	W. Dinn, Seedsman.

NOVA-SCOTIA.

Halifax,	C. H. Belcher.

NEW-YORK.

Ames,	W. R. Wheeler, p. m.
Black Rock,	E. A. Burnham, p. m.
Bainbridge,	J. C. Clark, p. m.
Branchport,	S. Booth, p. m.
Butternutts,	A. C. Moore, p. m.
Broadalbin,	H. G. Hawley,
Buskirk's Bridge,	J. Allen, p. m.
Butterfly,	J Parsons, p. m.
Brookfield,	A. Burdick,
Blooming Grove,	H. Moffitt,
Benton,	M. Gage, p. m.
Clyde,	J. Hummiston, p. m.
Canajoharie,	J. Netterville, p. m.
Canaan Centre,	J. Curtis,
Champlain,	J. C. Churchill, p. m.
Cambridge,	A. Crosby,
Champion,	N. Hubbard,
Cooperstown,	S. Doubleday,
Charleston,	J. Burton,
Coventry,	G. D. Phillips, p. m.
Durham,	A. Marks,
Delhi,	Paine & Clark,
Elmira,	H. Luce,
Flushing,	I. Bloodgood, p. m.
Fulton,	J. Sanford,
Franklin,	A. Douglass, p m.
Fowler,	E. Dodge, p. m.
Fultonville,	I. H. Tiffany,
Five Corners,	J. Milliken, p. m.
Fishkill,	J. Given, p. m.
Goshen,	H. W. Elliot, p. m.
Greenville,	A. Reed, p. m.
Garrettsville,	J. Herrington,
Glenn's Falls,	J. L. Dix,
Greenwood,	L. Davis, p. m.
Geneva,	G. G. Ritchel,
Ghent,	J. Fisher,
Homer,	L. Riggs, p. m.
Hamilton,	W. B. Burbanks,
Havanah,	S. Cager,
Hageman's Mills,	D. W. Candee, p. m.
Hoosick Falls,	H. W. Herrington,
Ithica,	E. Mack, p- m.
Johnstown,	T. A. Stoughtenburgh, p.
Jersey,	C. M'Clure, p. m. [m.
Keeseville,	J. Rogers,
Kinderhook,	J. Bain, p. m.
Lyons,	R. H. Foster, p. m.
Lansinghurgh,	A. Walsh,
Laurens,	A. Morse, p. m.
La Fayette,	N. Sterling,
Ledyard,	G. Meacham, p. m.
Minaville,	G. S. Philips,
Meredith,	S. Dutton,
Maltaville,	A. Fellows, p. m.
Marshall,	H. L. Hawley, p. m.
Marcellus,	T. Allen,
Macedon,	C. H. Bradish,
New-Hartford,	J. Allen, p. m.
Newburgh,	B. H. Mace,
New-York city,	Is. Post, 88 Bowery, [Ins.
———	P. Wakeman, Offi. Am.
———	Alx. Smith, Broadway,
Norwich,	P. Miller,
Ovid,	G. Dunlap,
Otego,	E. R. Brewer,
Ogden,	A. Cady,
Owego,	J. Fay, p. m.
Oran,	D. Dennison, p. m.
Oxford,	J. A. Glover,
Peekskill.	J. C. Concklin,
Pleasant Valley,	T. R. Hazard,
Plattekill,	S. Heaton,
Pittsford,	A. Voorhis, p. m.
Plattsburgh,	H. K. Averill, p. m.
Poughkeepsie,	Potter & Wilson, Kelsy
Peru,	W. Keese, [& Lossing
Rushville,	C. Loomis, p. m.
Rome,	P. Wright,
Rhinebeck,	W. B. Platt, p. m.
Richmond,	J. Johnson, p. m.
Sherburne,	A. Holmes, p. m.
Salem,	J. Hawley,
Stuyvesant,	A. S. Peters,
Smithtown,	G. S. Phillips, p. m.
Summer Hill,	S. Baker, p. m.
Stokes,	J. M. Husted, p. m.
Seneca Falls,	B. F. Whitney,
South Kortright,	M. Keeler. p. m.
Sidney,	J. O. Crane,
Springville,	S. Lake,
Saratoga Springs,	V. P. Wiggins, Dr. Steele
Schenectady,	I. Riggs, [p. m.
Sangerfield,	D. North, p. m.
Sing-Sing,	M. Hunt,
Trumansburgh,	J. M'Clellan, p. m.
Troy,	I. M'Conihe, p. m.
Truxton,	A. Burdick, p. m.
Utica,	W. Bristol,
Virgil,	W. Woodard, p. m.
Vernon,	S. Case,
Verona,	G. T. Peckman, p. m.
Warsaw,	A. Stevens,
Warren,	A. Cleary, [an, p. m
West-Winfield,	S. W. Patten, D. C. Cow
Westmoreland,	J. H. Hallock, p. m.
Waterloo,	J. C. Wood,
York,	D. M'Donald, p. m.

CONTRIBUTORS TO THIS VOLUME,

Besides " Subscribers," " Friends" and anonymous correspondents.

Allen, R. L.	page 180	Hamilton, S.	149
Bowers, H. G.	15, 53	Heartt, G.	150
Bement, C. N	43, 170, 199	Hudson, G.	165
Beal, N. K.	51	Hopkins, H.	197
Ball, L C.	53	Johnson, W.	70
Beeton, F. T.	84, 149	Jewett, F. W.	102, 133
Blatchley, N.	85	Johnson, T.	198
Burton, L.	100	Knapp, T. S.	17, 87
Bryan, E. H.	101	Kenrick, W.	20
Boyle, J.	101	Kelsy, L. jr.	52
Butler, C.	135	Kimball, C. P.	83
Barber, W.	147	Keese, W.	52
Bushnells, N. & A.	182	Lawton, J. M.	17
Barber, L.	183	Leonard, R. A.	26
Bullock, J.	197	Lewis, M. G.	27
Chittenden, N.	16	Loomis, N.	116
Cliff, L. D.	21, 147	Lowe, J.	65
Chapman, W.	146	Maison, judge,	12
Cheever, S.	23	Mendenhall, M.	165
Cocke, J. H.	148	Miller, W.	165
Carter, A.	163	Marks, A.	181
Cowley, A.	163, 184	Nazro, H.	132
Churchill, G.	165	Nye, H.	150
Cornell, E.	179	Ormsby, J.	52
Chiswell, J. H.	181	Paine, T.	26
Cotton, W.	197	Petrie, A.	54
Dille, J.	27, 101, 165	Porter, J. R.	117
Dey, A.	43	Robinson, S.	101, 132,
Daniels, J.	52		[149, 182, 198
Dodge, D. L.	53, 148	Russell, N.	199
Drake, J. R.	100	Spencer, A.	14
Dudley, T.	149	Spoor, A. O.	23, 18, 40,
Darling, N.	183		[57
Dudley, C. L.	54	Smeallie, J.	68, 85, 134
Doty, W.	200	Shields, J.	10
Ewing, N.	29	Seely, J.	100
Ellsworth, E. A.	134	Stephenson, H.	100
Evans, P. E.	164	Stone, W. A.	116
Fuller. J. C.	18	Speyerer. F. C.	116
French, J.	51	Snyder, H. W.	117
Field, J.	183	Snyder, J. A.	132
Foot, L.	101	Speed, J.	133
Foreman, G. W.	132	Sotham, H. W.	181
Gould, W.	26	Stillman, A.	200
Grant, J.	52	Tomlinson, D.	17
Garbutt. W.	55	Tilden, E.	84, 100
Gaylord, W.	56	Tripp, R.	131
Gates, W. R.	100	Tower, J.	132
Gray, W. S.	100	Taylor, W.	165
Gourlay, R. F.	148	Viele, J. J.	102
Goodsell, T.	164	Wheeler, R.	26
Hebard, L.	27	Wilson, Rev. R.	27
Howard, A. C.	52	Wood, A. jr.	83
Hathaway, J.	87, 183	Weller, S.	132
Hovey, C. R.	132	Wilbur, E.	133
Hurst, W. L.	148	Wells, B. F.	135

SEED STORE, UTICA.—The subscriber will keep, in connexion with his regular business, a general supply of fresh seeds, which he will sell at retail or in quantities, on the most favorable terms. His catalogue will embrace among others, the following, viz. Italian Spring Wheat, Herds Grass and Clover seed; Broom Corn, and a new and very valuable variety of early Indian Corn; Ruta Baga, Sugar Beet, &c. &c. Also, a full assortment of kitchen, flower garden seeds.

Orders from abroad for the Italian and Siberian Wheat will be executed promptly during canal navigation.
WM. BRISTOL.
Druggist, Utica, Oneida county, N. Y.

BERKSHIRE AND CHINA PIGS.—The subscribers will have a few pairs Berkshire pigs, for sale in the course of the ensuing spring and summer, and Chinas in the latter part of the season, chiefly from the stock of C. N. Bement, of Albany. Orders or letters of inquiry, *post paid*, will be punctually attended to.
H. & J. CARPENTER.
Norwich, Conn. Jan'y 20, 1838.

THE Italian Spring Wheat for sale by Ph. Van Rensselaer, Cultivator Office; J. Johnson & Son, Front-st. New-York; and Gideon B. Smith, Editor Turft Register, Baltimore, Md.